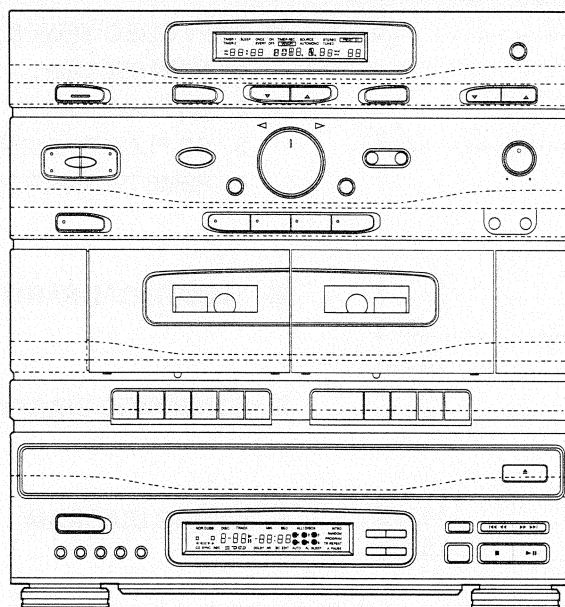


UNIVERSUM**SERVICE MANUAL****MODEL: VTC-4635****HI-FI MUSIC CENTER WITH COMPACT
DISC PLAYER****SPECIFICATION****GENERAL**

Power Consumption : 90W
 Dimension : 360(W)x357(H)x380(D)
 Weight (NET) : 10.2Kg
 Power source : See the label rating

RADIO**LW BAND**

Frequency Range : 146KHz~290KHz
 Usable Sensitivity : 900 μ V
 Signal to Noise Ratio : 35dB

MW BAND

Frequency Range : 522KHz~1611KHz
 Usable Sensitivity : 600 μ V
 Signal to Noise Ratio : 40dB

FM BAND

Frequency Range : 87.5MHz~108MHz
 Usable Sensitivity : 6 μ V
 Signal to Noise Ratio : 60dB
 Total Harmonic Distortion : 0.5%
 Separation : 30dB

TAPE (RECORD/PLAYBACK)

Frequency Range : 125Hz~8KHz
 Signal to Noise Ratio : 40dB
 Separation : 35dB
 Total Harmonic Distortion : 3%
 Erasing Effect : 50dB
 Wow & Flutter : 0.3%

COMPACT DISC PLAYER

Signal to Noise Ratio : 90dB
 Total Harmonic Distortion : 0.01%
 Channel Separation : 80dB
 D/A Conversion : 1 Bit

AUDIO

Output power (THD 10%) : 20W/CH
 Frequency response : 20~20,000Hz
 PRESET EQ : JAZZ, ROCK, CLASSIC POP
 S/N Ratio : 80dB

* Design and specifications are subject to change upon improvement without prior notice.

* Frequency range in radio section can be a little different from the above in accordance with frequency step or region.

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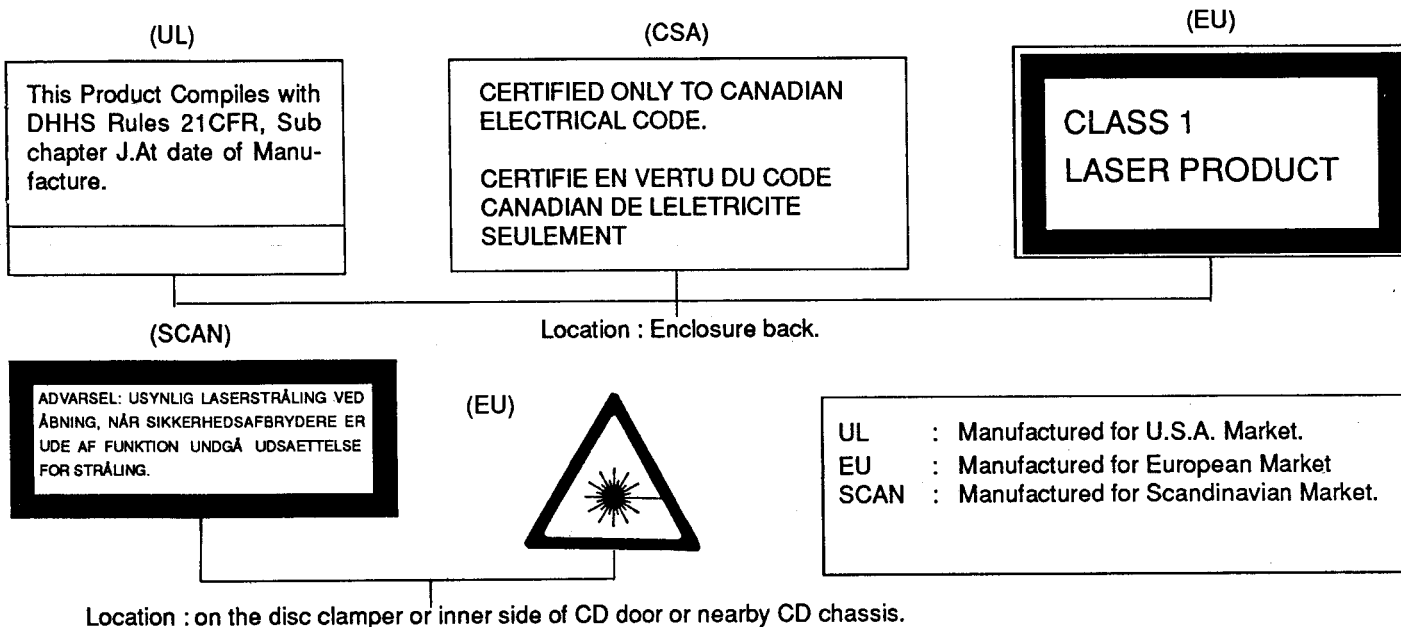
SAFETY PRECAUTION

1. CLASS1 LASER PRODUCT

This compact disc player is classified as a CLASS 1 laser product.

2. LASER WARNING LABEL

The label shown below may be affixed or not according to country.



3. LASER BEAM WARNING

- ADVERSEL** — USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSÆTTELSE FOR STRÅLING.
- VARNING** — OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRALEN ÄR FARLIG.
- VARITUS** — LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTÄ SILMILLE VAARALLISTA LASERSÄTEILYÄ.
- CAUTION** — INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

4. LASER DIODE SPECIFICATION (OPTICAL PICK-UP)

- o Material: AlGaAs
- o Wavelength: 760-800nm
- o Emission duration: Continuous
- o Laser Output: 0.2mW
- o * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- o Classification: CLASS 1

5. WARNING FOR SERVICING

- WARNING:** When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.
- VARNING:** När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för nära håll. Ifall det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avstånd av mer än 30cm (11.81 inch.) från den objektiva linsens yta på den optiska utsändningspunkten.
- ADVARSEL:** Når repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen på for naer hånd. It ilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.
- VAROITUS:** Silmiä on varottava viemästä liian läbeille Laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiydellä optisen lukon objektiivinlinsin pinnasta.

SERVICING NOTE

1. Prevent shock hazard by unplugging power supply cord before opening cabinet.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of unit need to be cleaned.
4. When replacing parts with safety features built in, be sure to use specified parts with same specs only.
5. Avoid repairing the set near TV or any other magnetic forces.
6. Disconnect plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic source when using control IC.
8. Be sure not to separate the pick-up from the unit.

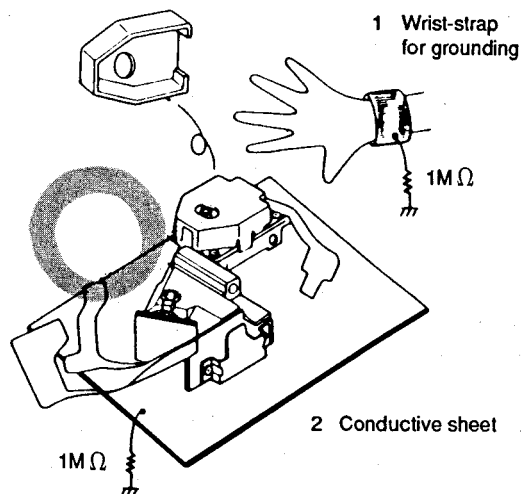
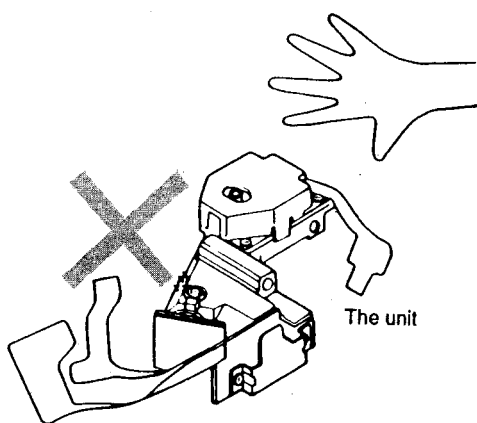
HANDLING THE OPTICAL PICK-UP

The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

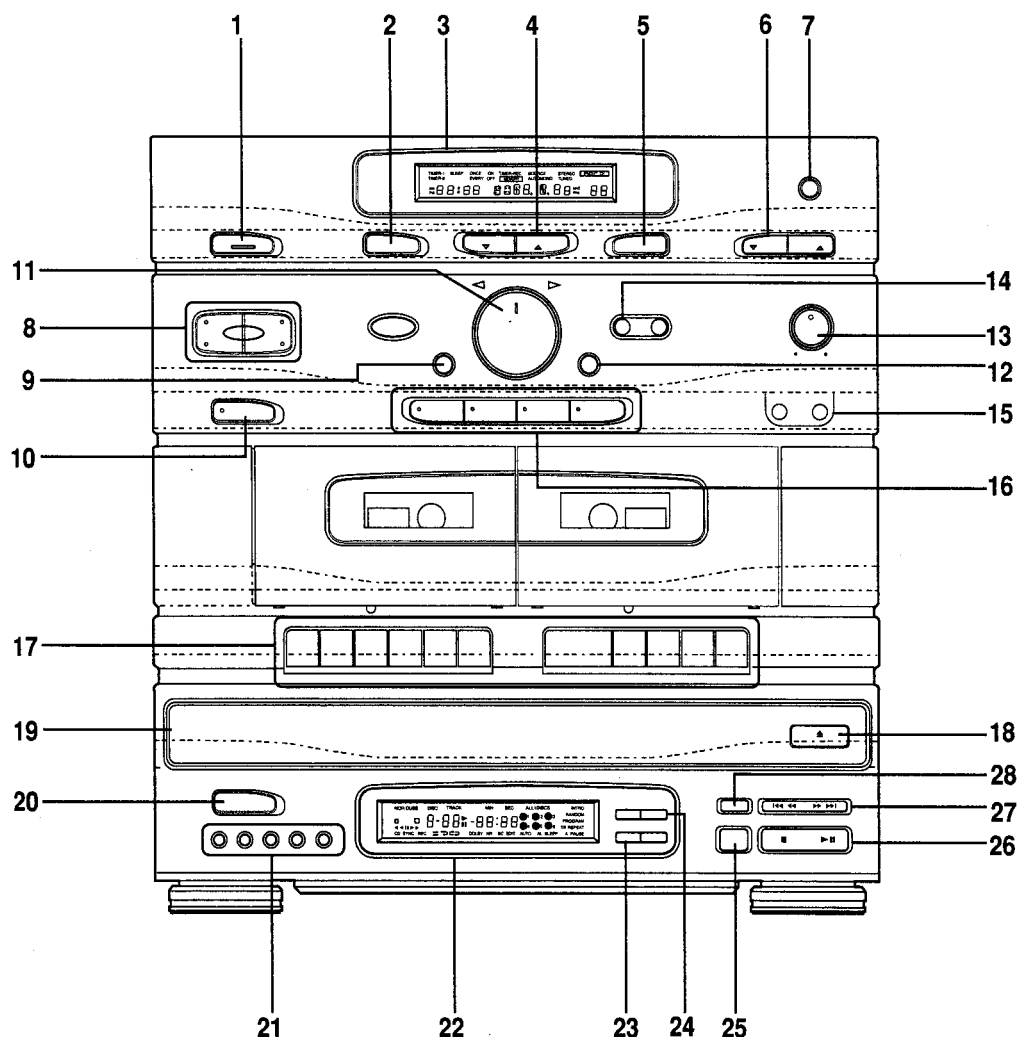
1. Place a conductive sheet on the work bench (The black sheet used as wrapping for repair parts).
 2. Place the set on the conductive sheet so that the chassis is grounded to the sheet.
 3. Place your hands on the conductive sheet (This gives them the same ground as the sheet).
 4. Remove the optical pick up block.
 5. Perform work on top of the conductive sheet.
- Be careful not to let your clothes or any other static sources to touch the unit.

- Be sure to put on a wrist strap grounded to the sheet.
- Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.



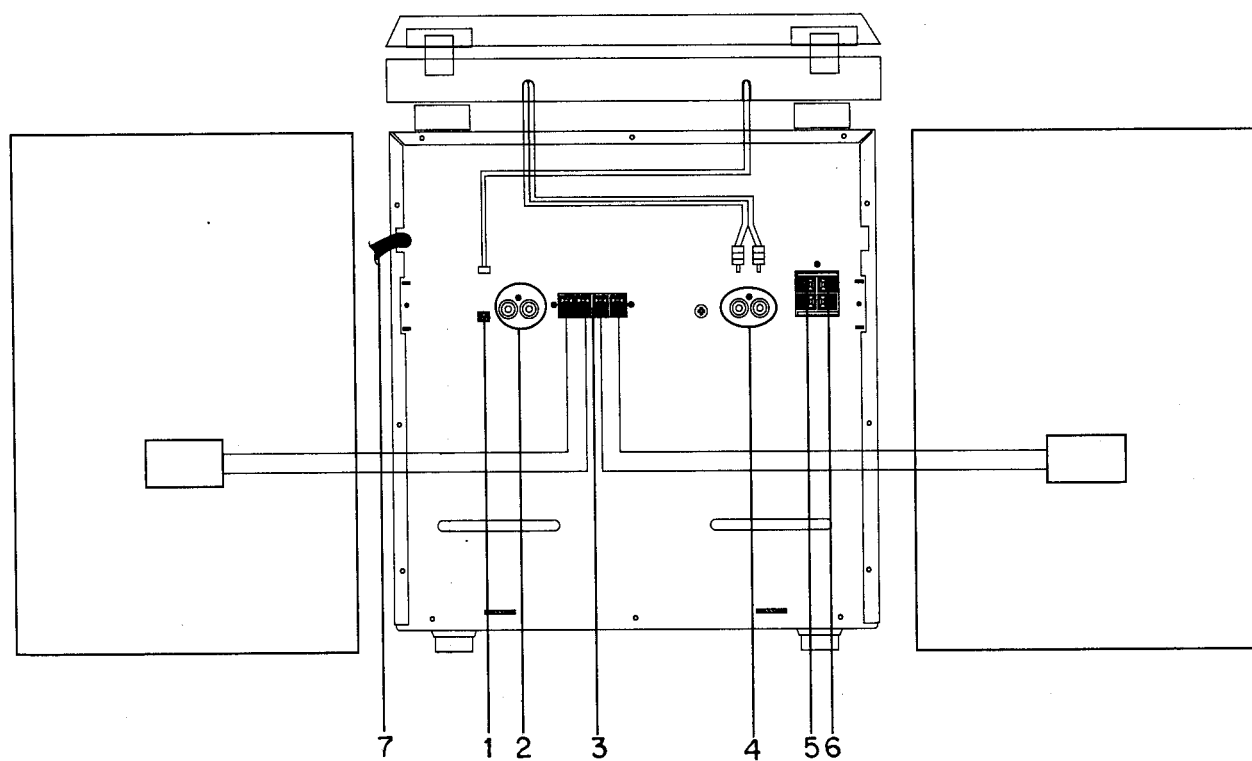
■ LOCATION OF CONTROLS

1. FRONT VIEW



- | | |
|---|-----------------------------------|
| 1. POWER BUTTON | 17. DECK A/B |
| 2. BAND BUTTON (FM/AM) | • RECORD BUTTON |
| 3. TIME/TUNER DISPLAY | • PLAY BUTTON |
| 4. PRESET UP/DOWN BUTTON | • REWIND BUTTON |
| 5. MEMORY BUTTON | • FAST FORWARD BUTTON |
| 6. TUNING UP/DOWN BUTTON | • STOP/EJECT BUTTON |
| 7. MONO/STEREO BUTTON | • PAUSE BUTTON |
| 8. EQ KEY BUTTON | 18. OPEN/CLOSE BUTTON |
| 9. SURROUND BUTTON | 19. CD DOOR |
| 10. EQ PASS BUTTON | 20. DISC SKIP BUTTON |
| 11. VOLUME | 21. DISC SELECTOR BUTTON |
| 12. C.F.B.S | 22. CD DISPLAY |
| 13. BALANCE VOLUME | 23. RANDOM PLAY/INTRO SCAN BUTTON |
| 14. HI SPEED DUBBING/TAPE SELECTOR BUTTON | 24. DISPLAY/+10 BUTTON |
| 15. HEADPHONE/MIC JACK | 25. REPEAT BUTTON |
| 16. FUNCTION SELECTOR BUTTON | 26. ■ : STOP/CLEAR BUTTON |
| | ▶▶ : PLAY/PAUSE BUTTON |
| | 27. ◀◀ : BACK SKIP/SEARCH BUTTON |
| | ▶▶ : F. SKIP/SEARCH BUTTON |
| | 28. PROGRAM BUTTON |

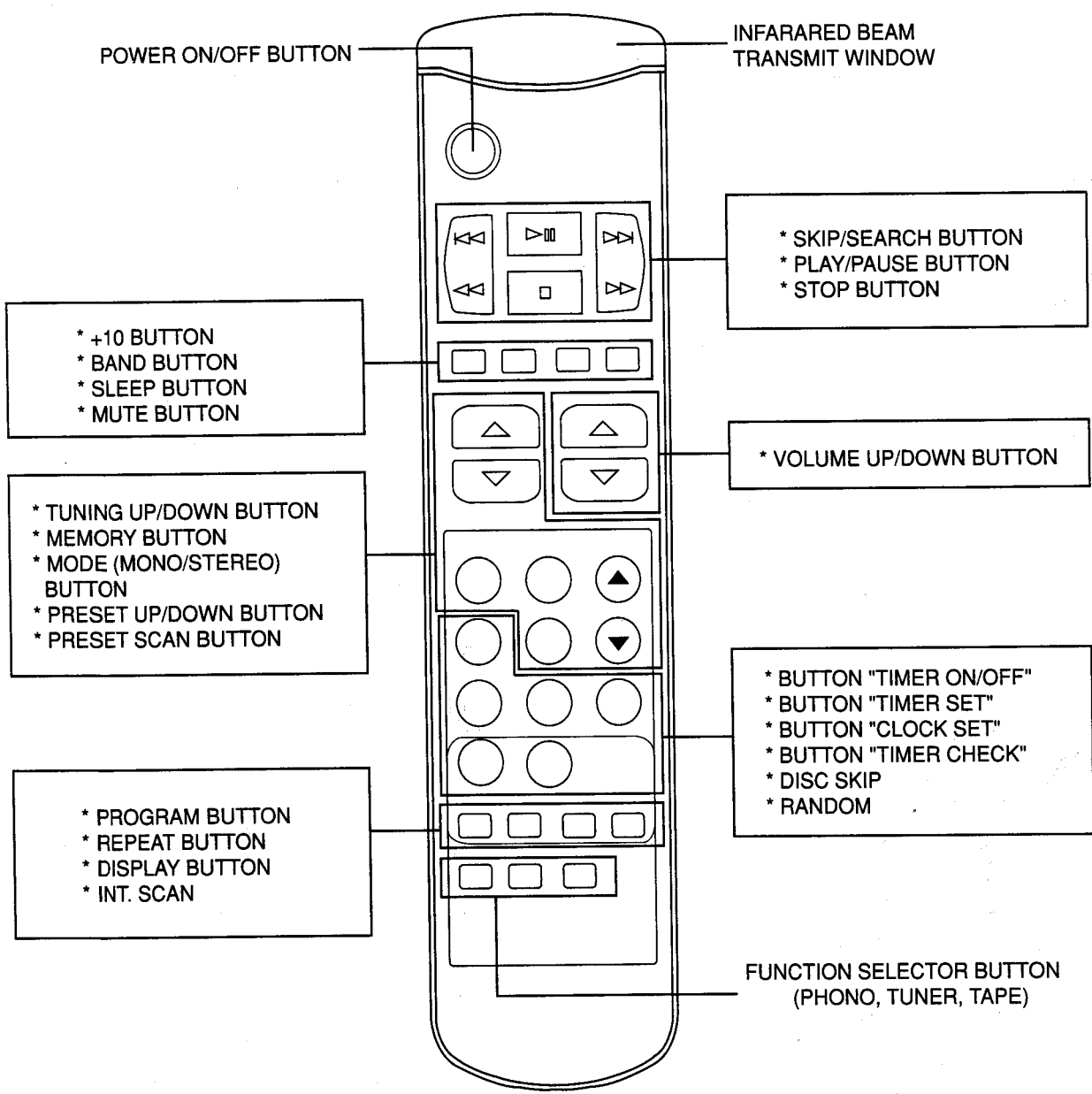
2. REAR VIEW



- 1. DC JACK (T/T)
- 2. SURROUND SPEAKER JACK (L,R)
- 3. SPEAKER TERMINAL (L,R)

- 4. PHONO JACK (L,R)
- 5. FM ANTENNA JACK
- 6. AM ANTENNA JACK
- 7. POWER CORD

3. REMOTE CONTROL



■ DISASSEMBLY INSTRUCTION

* Be sure to remove power cord before disassembling the player

1. TOP CABINET & REAR CABINET - FIG.1 -

- 1) Release 7 screws (①).
- 2) Remove TOP CABINET (direction A).
- 3) Release 14 screws (②).
- 4) Remove REAR CABINET (direction B).

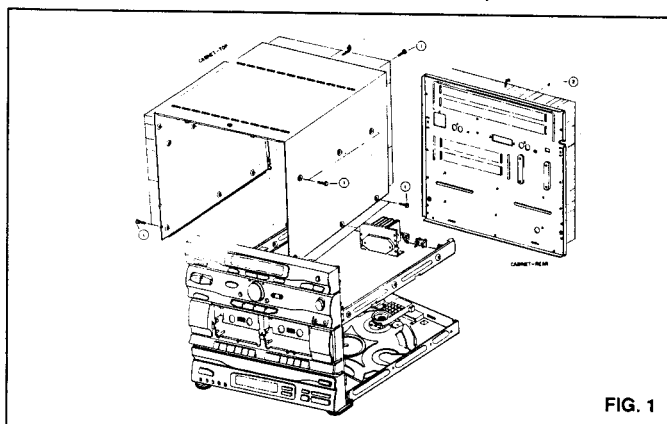


FIG. 1

4. CD - CHANGER - FIG.4 -

- 1) Press OPEN CHANGER.
- 2) Remove DOOR - CD.
- 3) Release 5 screws (①).
- 4) Remove FRONT CABINET, CHANGER.

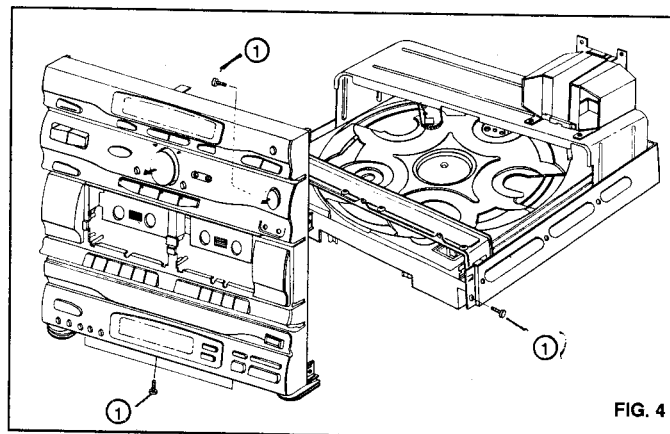


FIG. 4

2. MAIN PCB & FRONT PCB - FIG. 2 -

- 1) Release 7 screws (①).
- 2) Remove MAIN PCB.
- 3) Release 8 screws (②).
- 4) Remove KNOB (direction A,B).
- 5) Remove FRONT PCB.

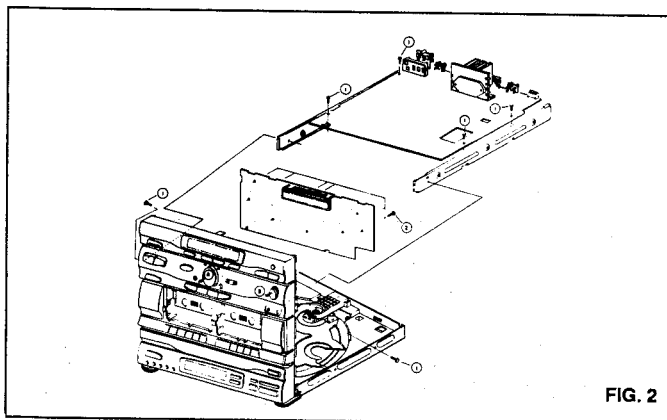


FIG. 2

5. CD-PCB & CHANGER - FIG. 5 -

- 1) Release 2 screws (①).
- 2) Remove CHASSIS - P/T.
- 3) Release 6 screws (②).
- 4) Remove CABINET - BOTTOM, CD - CHANGER.

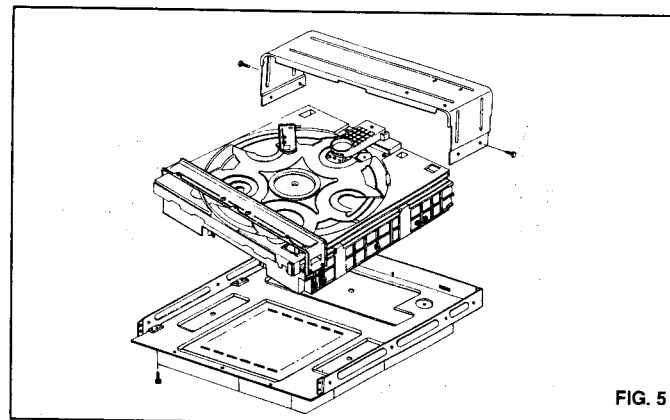


FIG. 5

3. CASSETTE DECK - FIG. 3 -

- 1) Press STOP/OPEN BUTTON.
- 2) CASSETTE DOOR OPEN.
- 3) Release 6 screws (①).
- 4) Remove CASSETTE DECK ASSEMBLY.

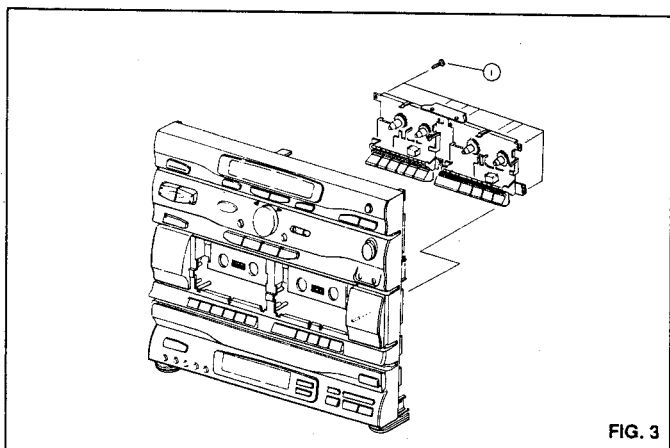


FIG. 3

6. HOW to open tray of CD changer when the power is turned off - FIG. 6 -

- 1) (+) Driver HOLE on BOTTOM interpose.
- 2) Driver (⌚) a circle turn.
- 3) Press OPEN to close TRAY (direction B)

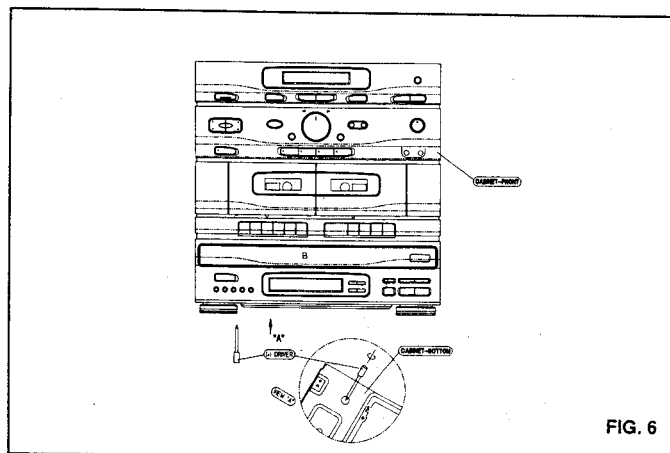



FIG. 6

■ BASIC CIRCUIT OPERATION

1. TUNER

● LC7233N-8805(μ-COM) : UIC1

* I : INPUT, O : OUTPUT

PIN No.	PIN NAME	I/O	OPERATION	ACTIVE
1	XIN	I	Crystal oscillating port.(4.5MHz)	—
2,79	TEST 1,2	I	Connect to GND	—
3	REMOCON	I	Remote control input port. If it is open, it may cause Remote Control to malfunction.	L
4	STEREO	I	GND	L
5~6	K5,K4	I	DIODE MATRIX INPUT SIGNAL	H
7	CE2	O	CD REMOTE CONTROL PORT	L
8-9	FM,AM,LW	O	Band power convert port. CD Remote control signal port.	L
10	PHONO LED	O	PHONO LED control port	H
11	VR UP	O	If volume up signals are input, it ouputs high voltage.	H
12	VR DOWN	O	If volume down signals are input, it ouputs high voltage.	H
13	MUTE	O	Not in use	
14	MO/ST	O	Mono stereo selection port.	H
15~17	CE,DO,CLK	O	LC7821 control port. (serial data line)	H,H, 
18	IF CNT	O	IF signal output port. If low voltage is input to SD port (LA 1851N) during auto search, it changes from low to high.	H
19	TUNER LED	O	TUNER LED Control port.	H
20	POWER OUT	O	Power control port.	H
21	A MUTE	O	Audio mute port.	L
22	TAPE LED	O	TAPE LED Control port.	H
23	CD LED	O	CD LED Control port.	H
24~30	T6-T0	O	Key scan output signal.	H
32~35	K3-K0	I	Key input signal.	H
36~63	S1-S28	I	LCD Segment drive port.	—
64,65	COM1,2	O	LCD Common drive port.	—
66	INT	I	Remote control port	
67	HOLD	O	L-Back up mode.	L
68	RES			
69	SD	I	Broadcast receiving port.	L
70	HCTR	I	FM IF Signal input port.	—
71	LCTR	I	AM IF Signal input port.	—
72	SNS	I	POWER ON/OFF Control.	H
74,75	FM IN,AM IN	I	Input local OSC signal.	—
77,78	EQ1,2	O	Phase comparison output signal. (pin77 : AM, 78 : FM)	
31,73	VDD			
76	Vss			
80	XOUT	O	Crystal oscillating port. (4.5MHz)	—

2. TAPE RECORDER

1) PLAY

When PLAY button of deck A is pressed, leaf switch is on which drives the motor through CD 1.

Deck A is operational when pin 9 of JIC1 (LA 3246) is at 0V.

When the PLAY button of deck B is pressed, the Leaf switch of deck B is on, which drives the motor through CD2.

Deck B is operational when 5~6 voltage is applied to pin 9 of JIC 1 LA 3246.

If you press both PLAY button of deck A and B simultaneously, deck B operates, first.

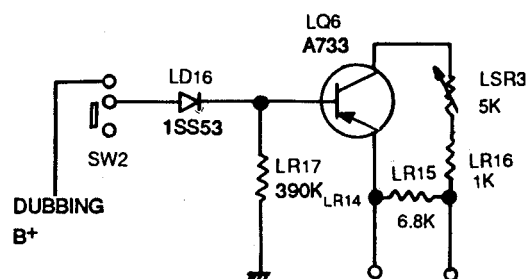
2) RECORD

If RECORD button of deck A is pressed, voltage is applied to the tape oscillation coil (LLI), which generates the bias supply current (105KHz) and, the current is supplied through the JC17L and JC17R to R/P head. At this time, the current is combined with the current of the Record Amplifier Output incorporated in the JIC1 (TA8135 pin7, 16) then supplied to the R/P HEAD which records signal. At this moment, PLAY Equalizer of deck A, B is set to deck B (pin1,2,19,20 of JIC1)

3) MOTOR SPEED

In normal speed, the speed is determined by the value which LR15 is combined with LSR3 + LR16 (LQ6 base : high) Therefore, the motor speed is in proportion to the resistor value. High speed dubbing operates only when recording in deck A and playing in deck B.

When SW2 is on, B+ voltage which will turn LQ6 off is supplied to base of LQ6. Then motor rotates at high speed. High rotational speed is determined by voltage at LQ6.



3. CD PLAYER

1) KS5990 KS5990B(Digital Signal Processor) : WIC 03

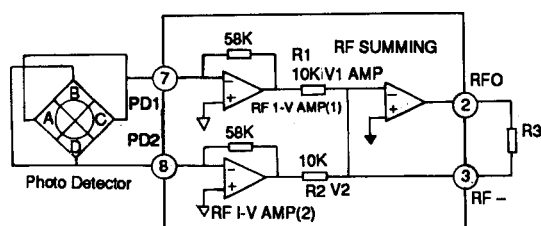
* I/O : INPUT/OUTPUT

Pin No.	Symbol	I/O	Description
1	SMEF	O	Pin 1 output is switched constant when output filter of the spindle motor is energized.
2	SMON	O	ON/OFF control for spindle motor.
3	SMPD	O	Spindle motor drive. Provides rough control during CLV-S mode and phase control during CLV-P mode.
4	SMSD	O	Spindle motor drive. Controls speed during CLV-P mode.
5	EFMZ	I	EFM signal from RF amplifier.
6	EFMO	O	Controls slice level of the EFM signal.
7	LOCK	O	The output of pin 7 reflects the status of the GFS signal which is sampled at PBFR/16. When the GFS signals is "H", but, when the signal has remained "L" for at least 8 samples, the output of pin 7 is "L".
8	VCOO	O	VCO output. The frequency is $f = 8.6436\text{MHz}$, when locked by the DBFR signal.
9	VCOI	I	VCO input.
10	TEST	I	(0V).
11	PHAS	O	The output of Pin11 provides phase comparison of EFM signal and VCO/2.
12	Vss	—	GND (0V).
13	MCK	I	Pin 13 provides serial transmission clock from the CPU. Data is latched on the leading edge of the clock.
14	MLT	I	Pin 14 provides latch input from the CPU. 8-bit shift register data (serial data received from the CPU) is latched in each of the registers.
15	MDAT	I	Serial data from the CPU.
16	XRST	I	System reset ("L").
17	TRCK	I	Tracking pulse input.
18	ISTAT	O	Output reflecting internal condition as designated by address.
19	MUTE	I	Muting input. MUTE is "L" when ATTM of internal register A is "L" (normal condition). MUTE is "H" when muting condition is set.
20	SQOK	O	Output the results CRC check of subcode Q.
21	SBCK	I	Clock input for subcode serial output.
22	SDAT	O	Serial output of subcode.
23	SQDT	O	Output of subcode Q.
24	S0S1	O	Output of subcode sync S0 + S1.
25	SQCK	I/O	Clock for reading subcode Q.
26	SQEN	I	Input for selecting SQCK (L; SQCK is output, H; SQCK is input)

Pin No.	Symbol	I/O	Description
27	SRAM	I	SRAM is "H" in Normal, SRAM is "L" when system is testing.
28	LKFS	O	Display output for frame sync lock status.
29	DB8	I/O	Data pin for external RAM. DATA8 (MSB) in test mode. Hi-Z in normal
30	DB7	I/O	Data pin for external RAM. DATA7 in test mode. Hi-Z in normal
31	DB6	I/O	Data pin for external RAM. DATA6 in test mode. Hi-Z in normal
32	DB5	I/O	Data pin for external RAM. DATA5 in test mode. Hi-Z in normal
33	V _{DD}	—	Power supply (+ 5V).
34	DB4	I/O	Data pin for external RAM. DATA4 in test mode. Hi-Z in normal
35	DB3	I/O	Data pin for external RAM. DATA3 in test mode. Hi-Z in normal
36	DB2	I/O	Data pin for external RAM. DATA2 in test mode. Hi-Z in normal
37	DB1	I/O	Data pin for external RAM. DATA1 (LSB) in test mode. Hi-Z in normal
38	AD01	O	(LSB) In normal mode (TEST = 'L', SRAM = 'H'), these pins are High impedance (Hi-Z) In test mode (TEST = 'H', SRAM = 'L'), these pins are Output address of external RAM (MSB)
39	AD02	O	
40	AD03	O	
41	AD04	O	
42	AD05	O	
43	AD06	O	
44	AD07	O	
45	AD08	O	
46	AD09	O	
47	AD10	O	
48	AD11	O	
49	WE	I/O	In normal mode, this is WE output. In test mode, write enable input.
50	CE	I/O	In normal mode, this is CE output. In test mode, chip enable input.
51	4MCK	O	Divider output for crystal. f = 4.2336MHz
52	V _{SS}	—	GND (0V)
53	XIN	I	Input to crystal oscillator circuit. Depending on the mode the frequency is either f = 8.4672 or 16.9344MHz.
54	XOUT	O	Output from crystal oscillator circuit. Depending on the mode the frequency is either f = 8.4672 or 16.9344MHz.
55	SEL1	I	Mode selection input 1.
56	SEL2	I	Mode selection input 2.
57	SEL3	I	Mode selection input 3.
58	SEL4	I	Mode selection input 4. Code switch input for audio data output. 2's complement output when "L", offset binary output when "H".
59	SEL5	I	Mode selection input 5. Code switch input for audio data output. Serial output when "L", parallel output when "H".
60	APTR	O	Output for aperture compensation. "H" when R-ch.
61	APTL	O	Output for aperture compensation. "H" when L-ch.
62	C1F1	O	Monitor output reporting status of error correction for C1 decoder. When SEL5 = 'L', DA01 (LSB of parallel audio data) is output when SEL5 = 'H'.
63	C1F2	O	Monitor output reporting status of error correction for C1 decoder when SEL5 = 'L', DA02 is output when SEL5 = 'H'.

Pin No.	Symbol	I/O	Description
64	C2F1	O	Monitor output reporting status of error correction for C2 decoder when SEL5 = 'L', DA03 is output when SEL5 = 'H'.
65	C2F2	O	Monitor output reporting status of error correction for C2 decoder when SEL5 = 'L', DA04 is output when SEL5 = 'H'.
66	C2FL	O	When SEL5 = 'L', output of status condition. C2FL is set 'H' when the C2 sequence. Presently being corrected becomes impossible to correct. DA05 is output when SEL5 = 'H'.
67	C2PO	O	Display output of the C2 pointer when SEL5 = 'L', DA06 is output when SEL5 = 'H'.
68	XTFR	O	When SEL5 = 'L', output of read frame clock which is 7.35KHz of the crystal system. DA07 is output when SEL5 = 'H'.
69	PBFR	O	When SEL5 = 'L', output of write frame clock which is 7.35KHz when locked by the crystal system. DA08 is output when SEL5 = 'H'.
70	PBCK	O	When SEL5 = 'L', output of VCO/2 (f = 4.3218MHz when locked by the EFM signal). DA09 is output when SEL5 = 'H'.
71	FSDW	O	When SEL5 = 'L', output for unprotected frame sync patterns. DA10 is output when SEL5 = 'H'.
72	ULKFS	O	Output for display of status of frame sync protection when SEL5 = 'L', DA11 is output when SEL5 = 'H'.
73	V _{DD}	—	Power supply (+ 5V).
74	JIT	O	When SEL5 = 'L', output for display of either RAM overflow or underflow for +4 frame jitter absorption. DA12 is output when SEL5 = 'H'.
75	ZWDCK	O	When SEL5 = 'L', output for strobe signal (352.8KHz when DF is ON, 176.4KHz when DF is OFF). DA13 is output when SEL5 = 'H'.
76	BLCK	O	When SEL5 = 'L', inverse output of BLCK. DA14 is output when SEL5 = 'H'.
77	BLCK	O	When SEL5 = 'L', bit clock output (4.2336MHz when DF is ON, 2.1168MHz when DF is OFF) DA15 is output when SEL5 = 'H'.
78	DATA	O	Serial data output of audio signal when SEL5 = 'L'. DA16 is output when SEL5 = 'H'.
79	WDCK	O	Strobe signal output. Output is 176.4KHz when DF is on. Output is 88.2KHz when DF is off.
80	CHCK	O	Strobe signal output. Output is 88.2KHz when DF is on. Output is 44.1KHz when DF is off.

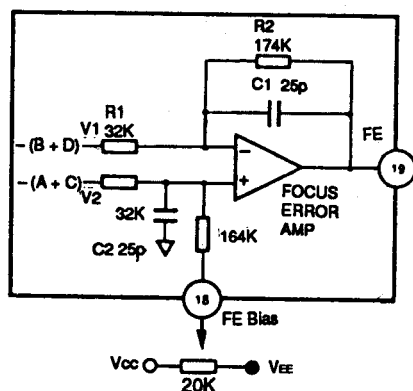
(2) RF AMPLIFIER (KA9201) : WIC-01



RF I-V AMP(1) and RF I-V AMP(2) are converted into voltage from current signal of PD1 (A + C) and PD2 (B + D) through the 58Kohm internal resistor. Furthermore, it is added in RF summing amplifier, this signal (A + B + C + D) is output at RFO (pin 2). The RF output voltage (low frequency) is as follow.

$$\begin{aligned}
 V_{RF} &= -R_3 \cdot (i_{PD1} + i_{PD2}) \\
 &= -R_3 \cdot (V_1/R_1 + V_2/R_2) \\
 &= -R_3 \cdot (V_1/10K + V_2/10K)
 \end{aligned}$$

(3) FOCUS ERROR AMPLIFIER (KA9201) : WIC 01



The Focus Error AMP is the difference between RF I-V AMP (1) output (A + C) and RF I-V AMP(2) output (B + D). This two $[-(A + C), -(B + D)]$ signals are each applied to the $(-)$ and $(+)$ input of Focus Error AMP.

As the result of differential voltage, Focus Error signal is appeared at FE pin (pin 19).

This FE output voltage (low frequency) become $[(A + C) - (B + D)]$, as follow.

$$\begin{aligned} V_{FE} &= R_2/R_1 \times (V_2 - V_1) \\ &= 5.4 (V_2 - V_1) \end{aligned}$$

The focus error voltage is directed to the focus servo circuit, to maintain optimum focusing at all times.

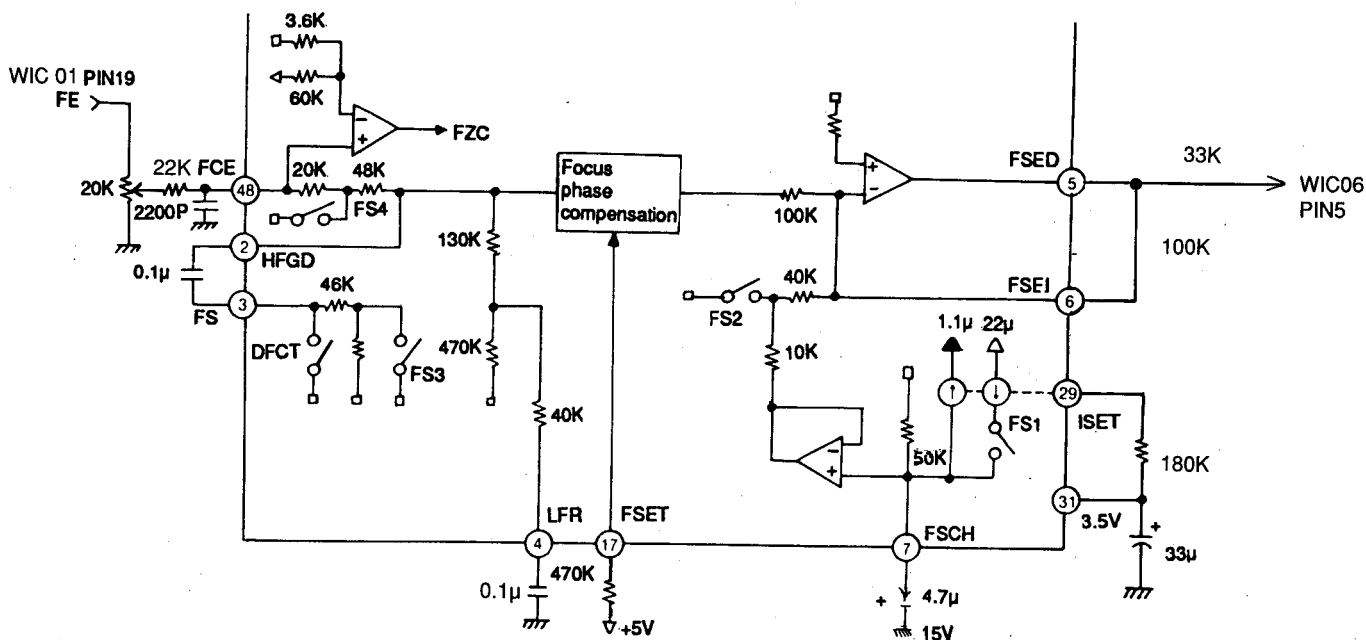
(4) FOCUS SERVO (KA830 9B) : WIC 02

The below is a block diagram of the focus servo system.

When FS3 is switched on, the high frequency gain can be reduced by forming a low frequency time constant through a capacitor connected across pins 2 and 3 and the internal resistor.

The capacitor across the pin 4 and GND has a time constant to raise the low frequency usually playback condition. The peak frequency of the focus phase is 100 kHz.

The peak frequency of the focus phase compensation is inversely proportional to the resistor connected to pin 17 (about 1.2KHz when the resistor is 470 k Ω).



The focus search peak becomes about ± 1.1 Vp-p with above constant. The peak is inversely proportional to the resistor connected across the pins 29 and 31. However, when this resistor is varied, the peaks of track jump and sled kick also vary. The FZC comparator invert input is set to 5.7% of the difference between the reference voltage V_{cc} and V_c (Pin 1) : $5.7\% \times (V_{cc} - V_c)$.

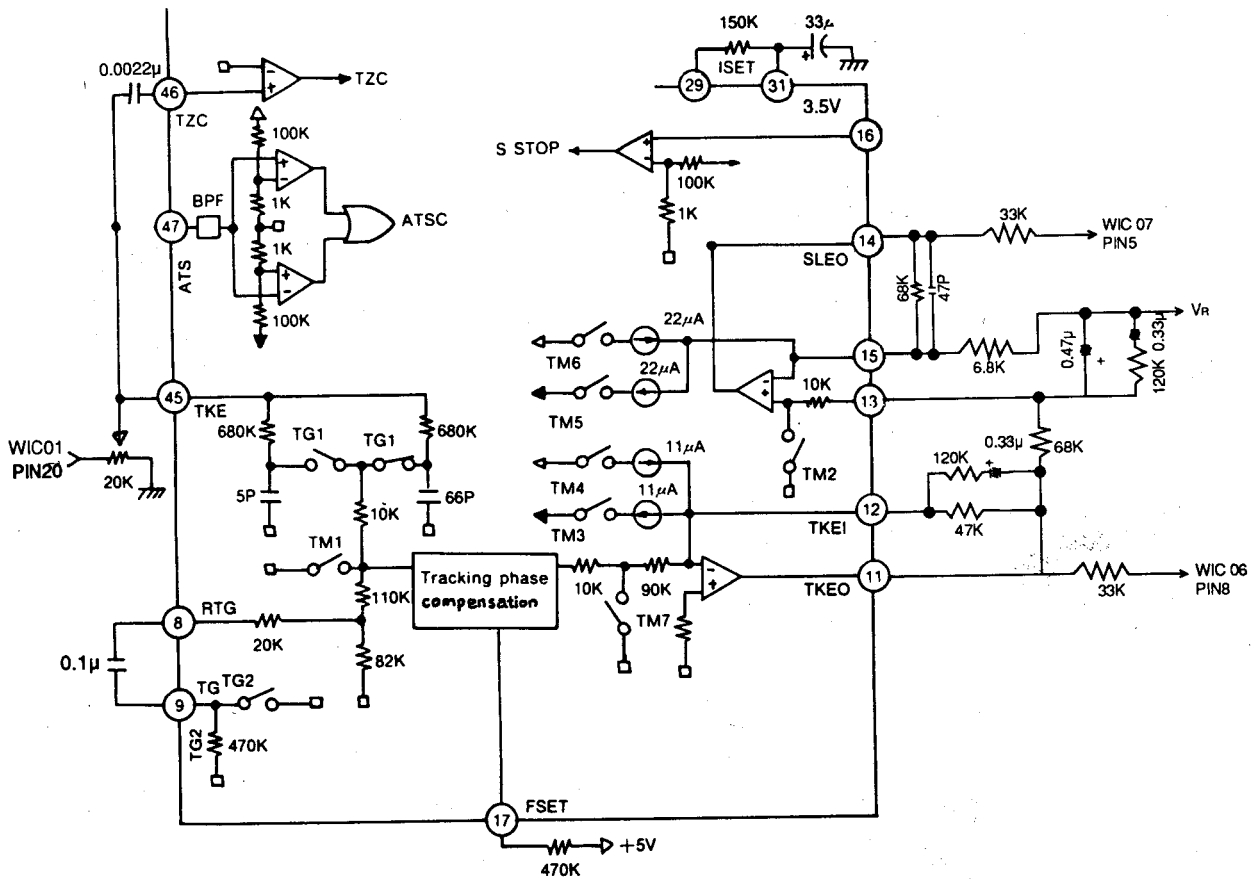
(5) TRACKING SLED SERVO SYSTEM (KA8309B): WIC 02

The below is a block diagram of the tracking sled servo system.

The capacitor across pins 8 and 9 has a time constant to lower the high frequency when TG2 is switched off. The tracking phase compensation peak frequency is inversely proportional to the resistor connected to pin 17 (about 1.2KHz when the resistor is 470K Ω).

For a tracking jump in the FWD or REV direction, TM3 or TM4 are set to ON. At this time, the peak voltage fed to the tracking coil is determined by the TM3 and TM4 current values and the feedback resistor from pin 12. That is:

Track jump peak voltage = TM3 (TM4) current value x feedback resistor value



The FWD or REV sled kick is done by setting TM5 or TM6 ON. At this time, the peak voltage added to the sled motor is determined by the TM5 or TM6 current value and the feedback resistor from pin 15.

Sled jump peak voltage = TM5 (TM6) current value x feedback resistor value

Each SW current value is determined by the resistor connected to pins 29 and 31.

When the resistor is at about $150\text{K}\Omega$,

TM3 or TM4 is + 11 μ A and TM5 or TM6 is + 22 μ A.

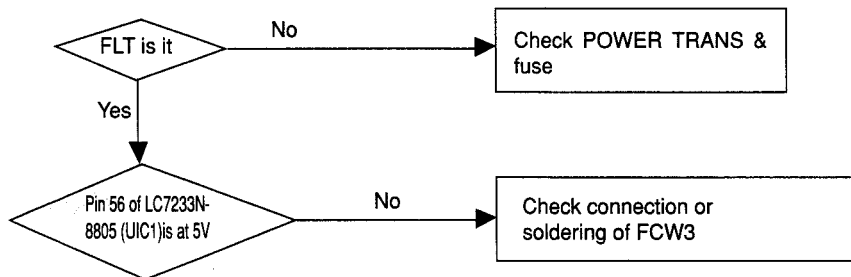
This current value is almost inversely proportional to the resistor, variable within a range of about 5 to 40 μA for TM3.

STOP is the ON/OFF detection signal for the limit SW or the sled motor's innermost circumference.

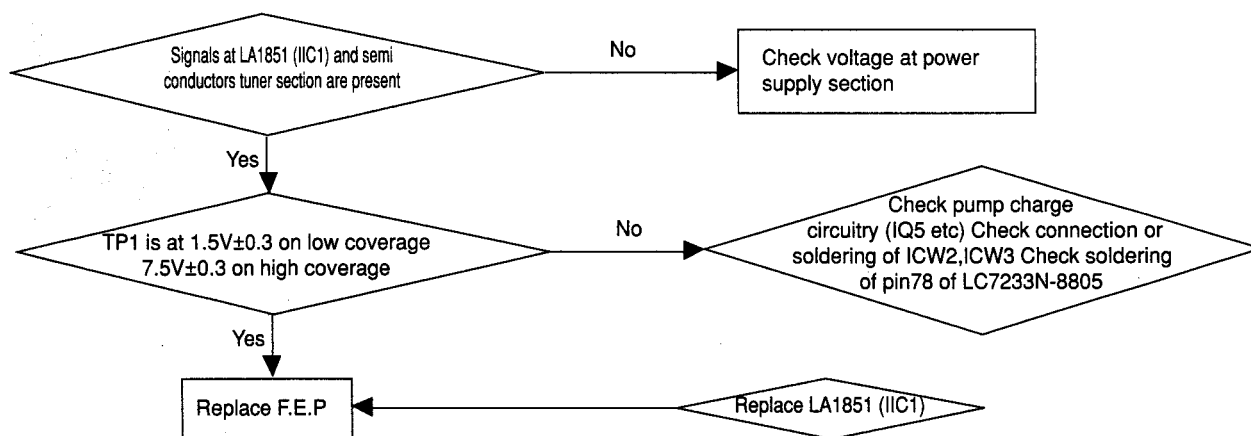
■ TROUBLE SHOOTING

1. MAIN UNIT

1) POWER ON/OFF PROBLEM

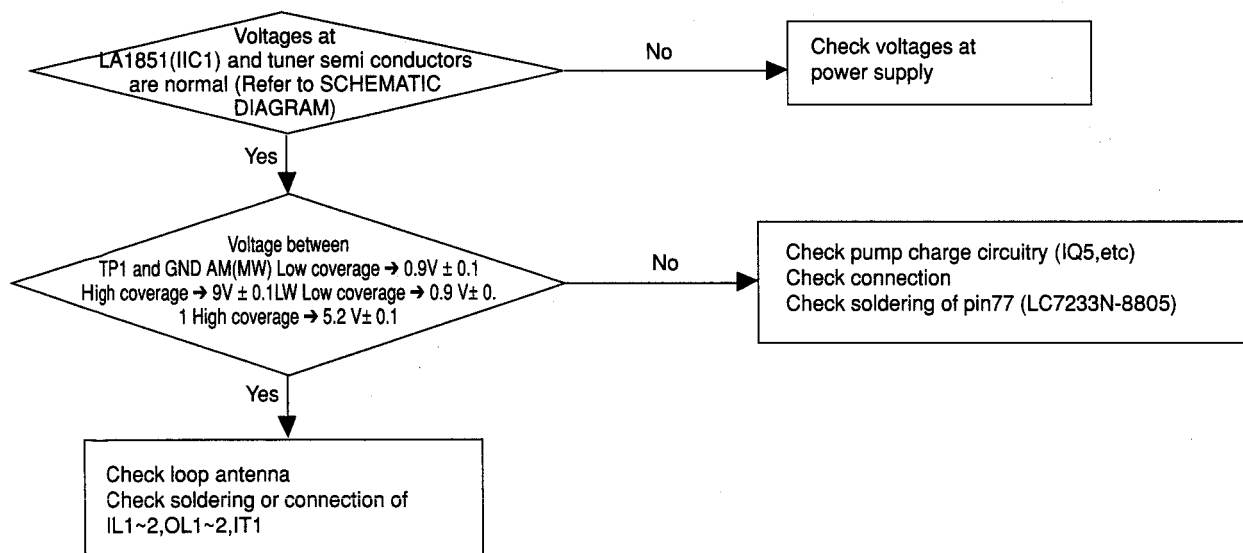


2) FM NO SOUND

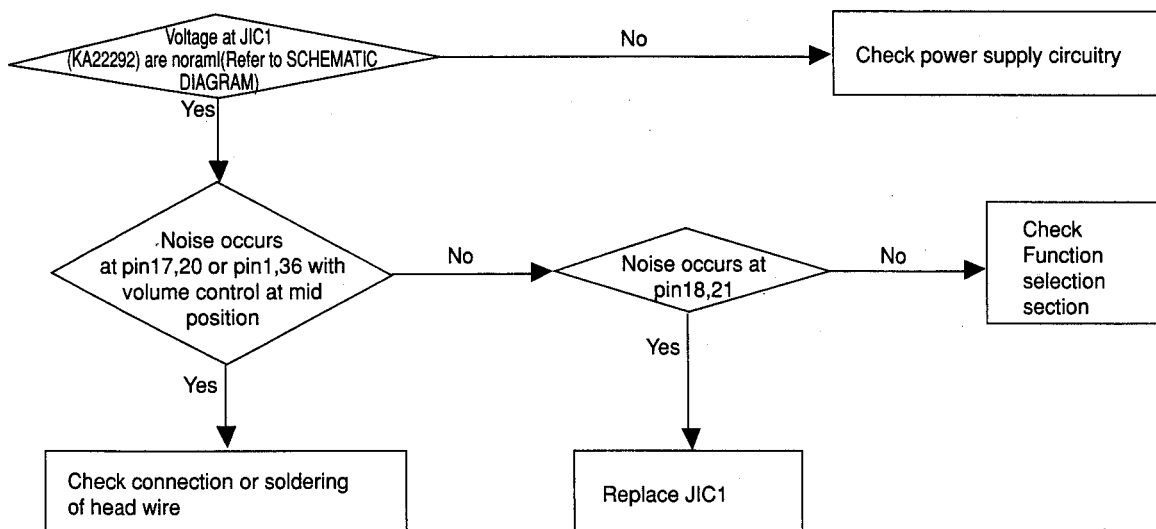


* F.E.P:FRONT END PACK

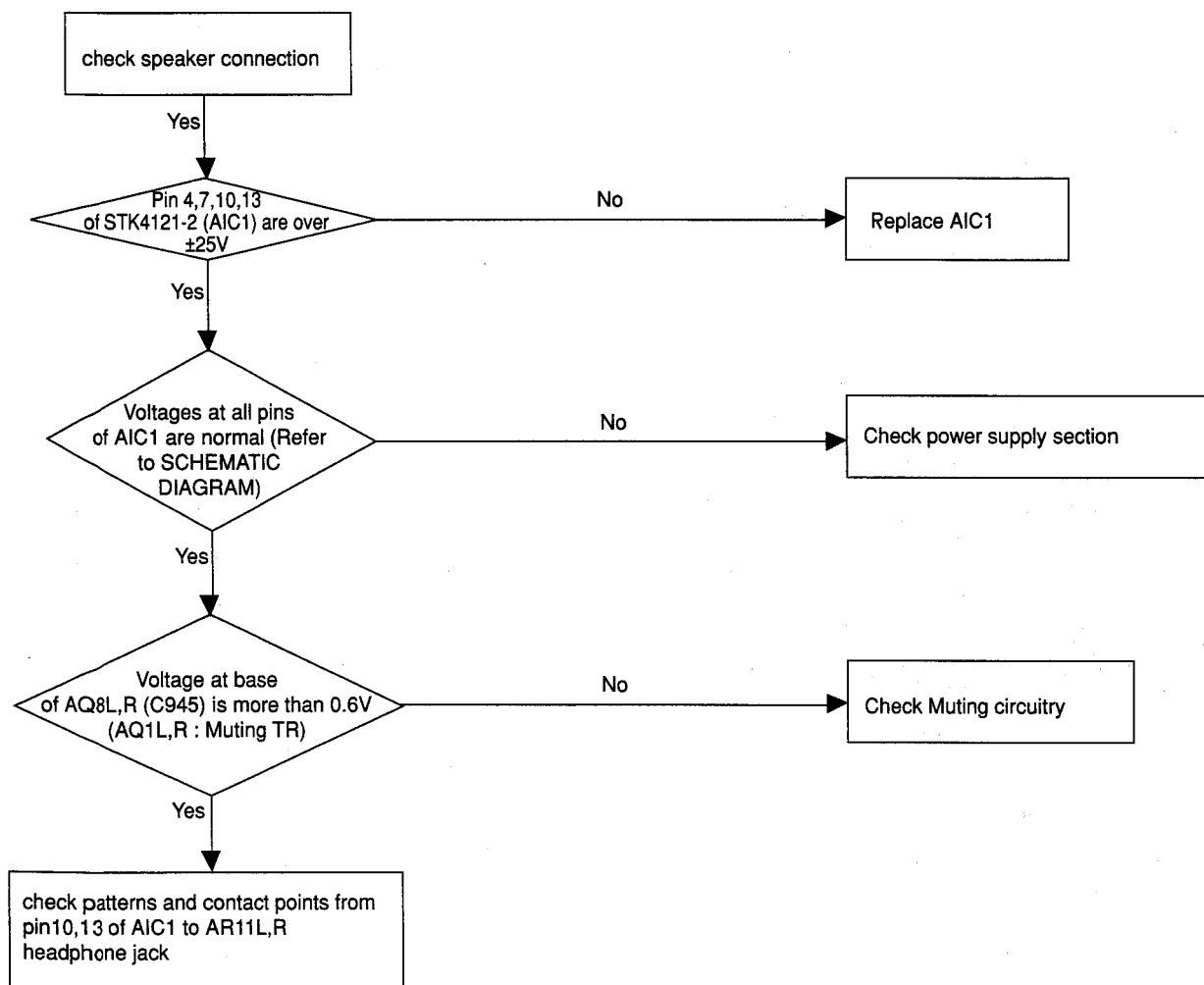
3) AM NO SOUND



4) TAPE NOT PLAYING



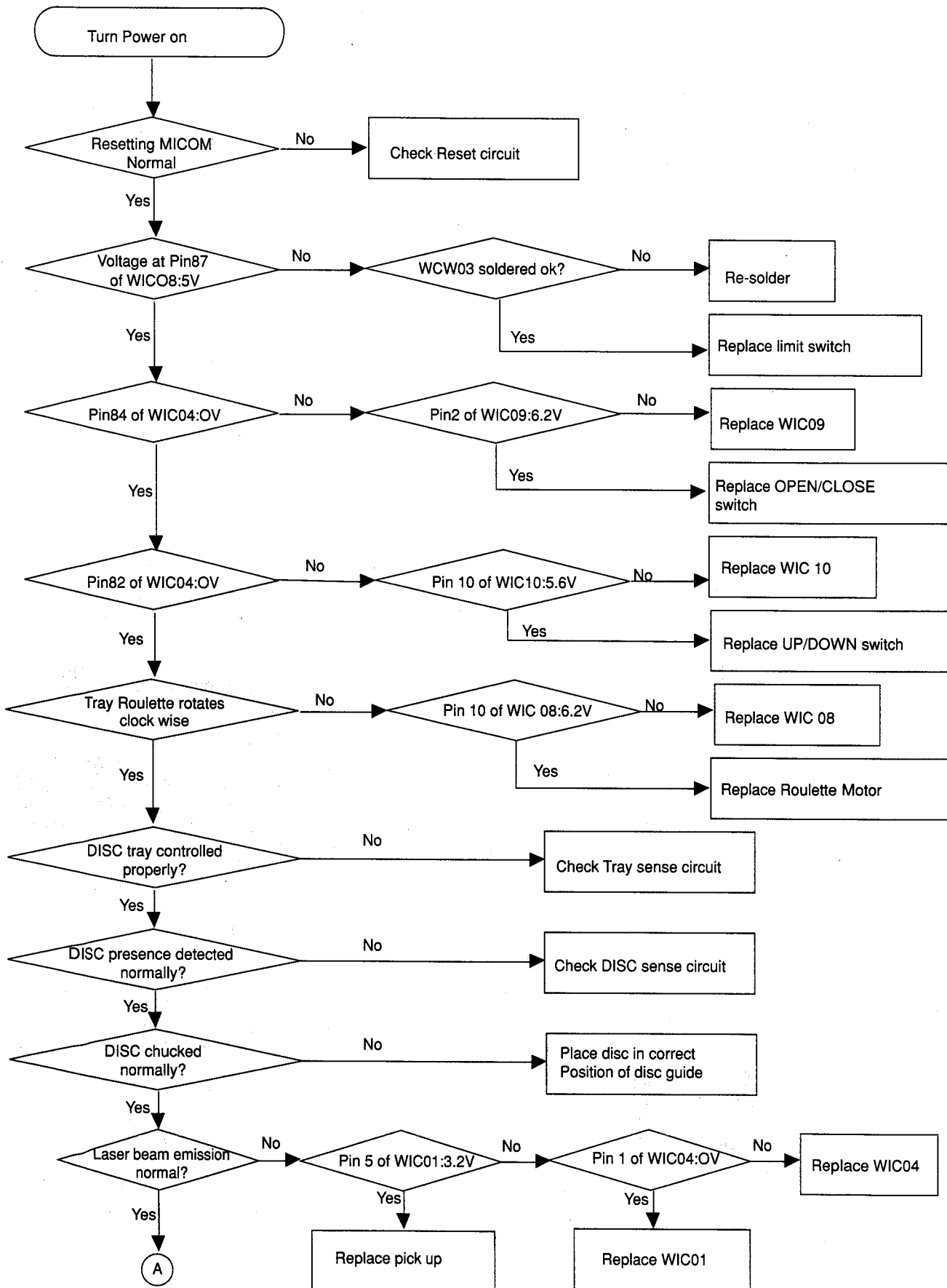
5) AUDIO OUTPUT PROBLEM

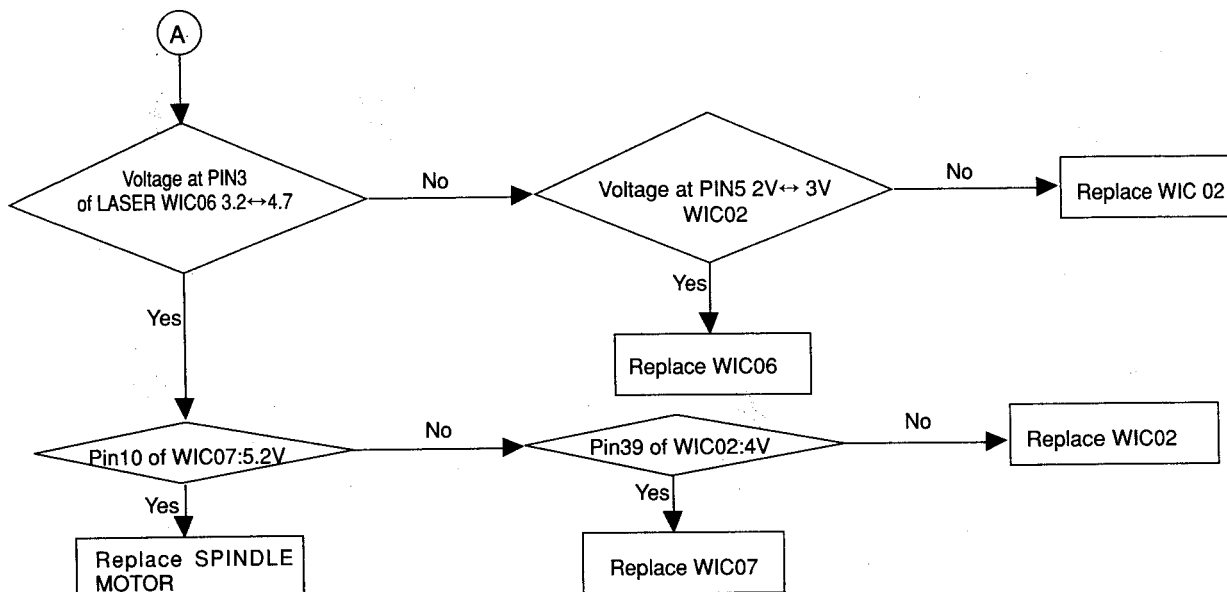


2.CD PLAYER

* Be sure not to use a warped or dirty disc in troubleshooting.

1) DISC DOESN'T ROTATE





2) LEAD IN NOT WORKING

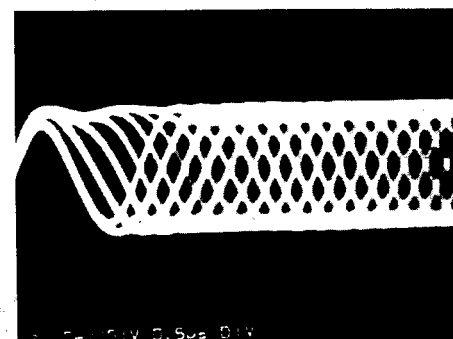
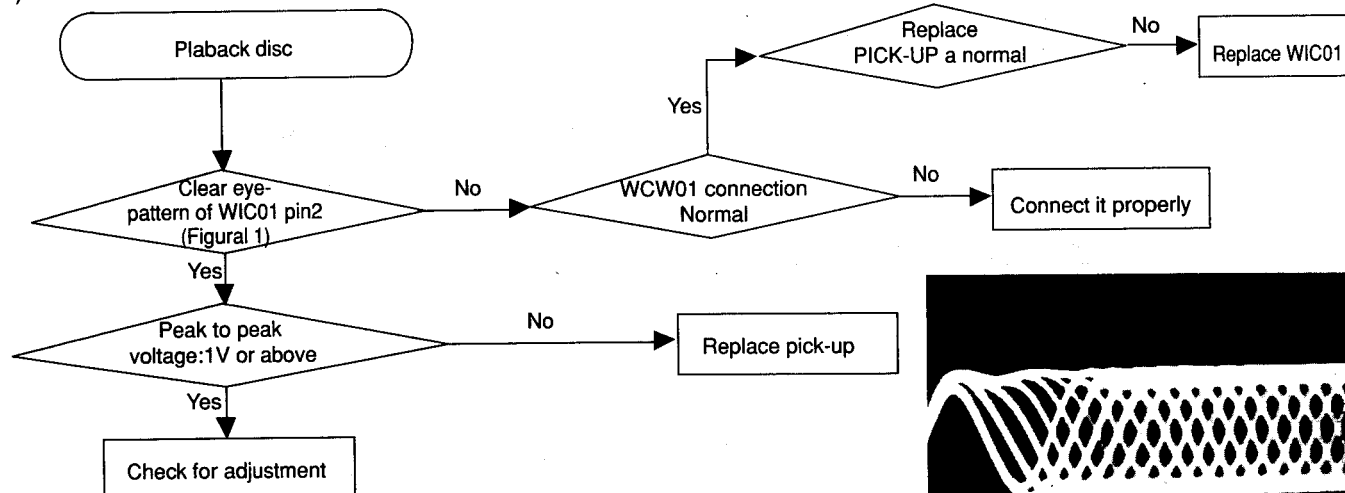


FIG.1

3) NO AUDIO

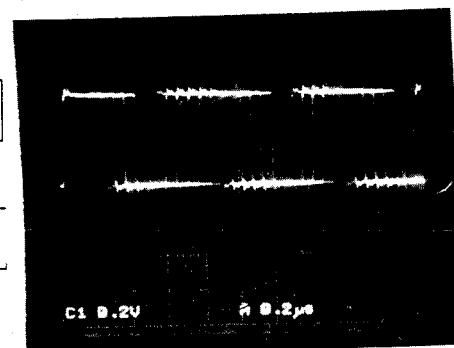
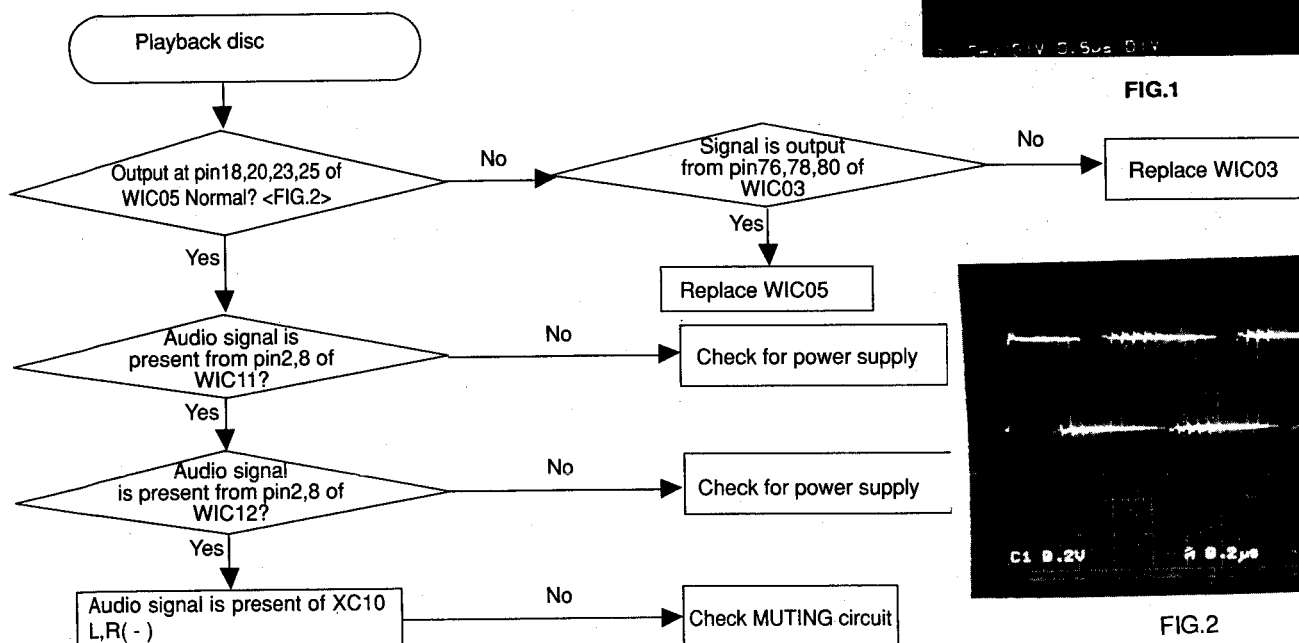


FIG.2

■ ADJUSTMENT

Adjustments to this unit have already been made during production procedure.
Therefore, no adjustment is needed. If readjustment is required, follow the adjustment procedure given.

1. TUNER

1) MEASURING INSTRUMENTS REQUIRED

- (1) AM standard signal generator (S.S.G)
: 400Hz, 30% MOD.
- (2) FM standard signal generator
: output impedance 75 Ω
1KHz, 40KHz DEV.
- (3) Oscilloscope
- (4) VTVM
- (5) Frequency counter
- (6) Loop antenna

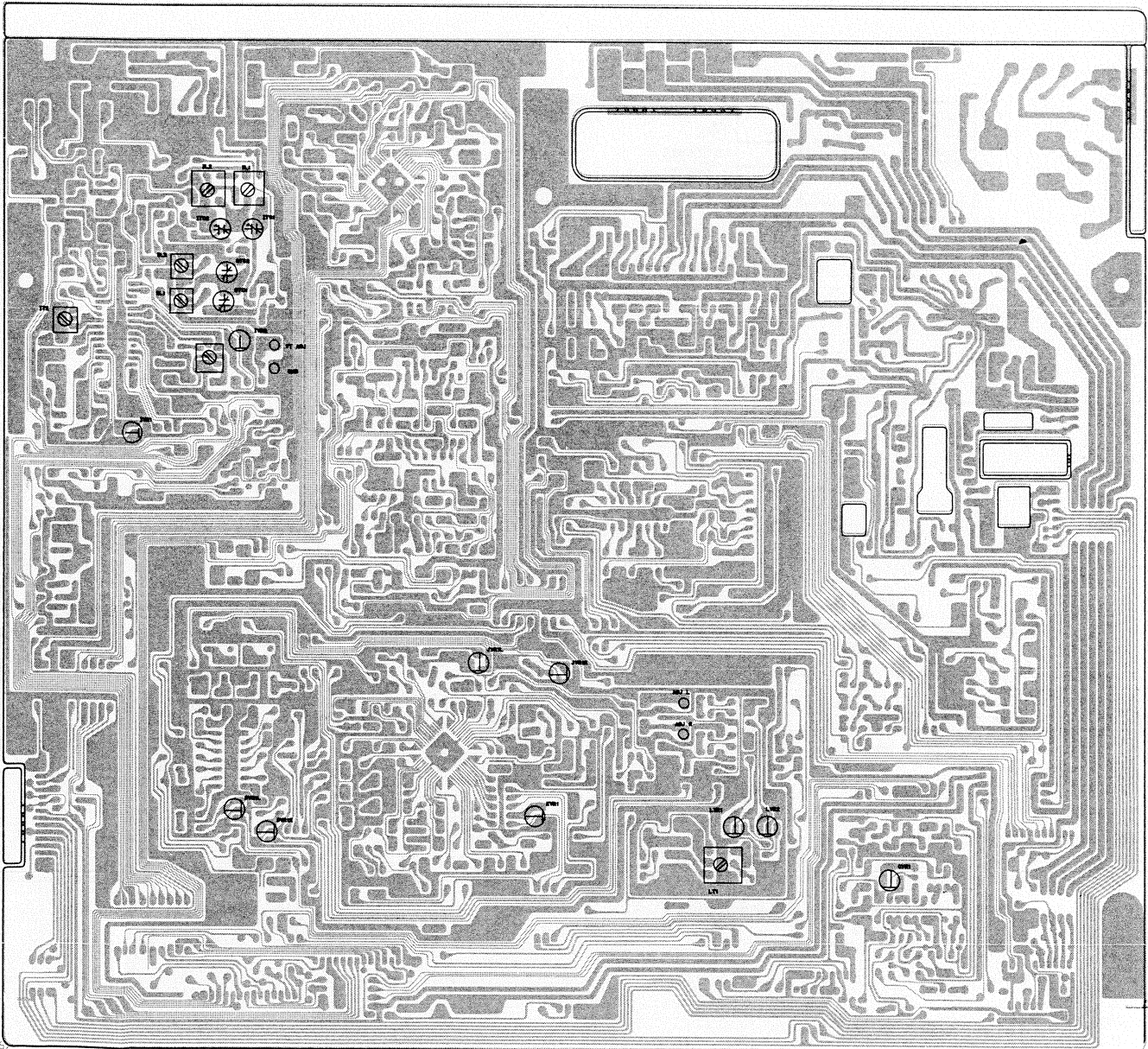
- (7) Dummy (75 Ω)
- (8) DC voltmeter

2) IMPORTANT

- (1) Check the power source voltage.
- (2) Set function and band switches to a band to be aligned.
- (3) The equalizer, volume and balance control should be trned to the mid position.

3) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

MAIN PCB



4). ADJUSTMENT PROCEDURE

(1) FM ADJUSTMENT

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	IF CENTER & T.H.D adjustment.	FIG. 1	98MHz	98MHz	IT 2	Minimum distortion
2	Auto search level adjustment	FIG. 2	98MHz	98MHz	IVR 2	STEREO LED ON
3	FM stereo separation adjustment	FIG. 3	98MHz	98MHz	IVR 1	If L-CH is input, R-CH should be minimum and visa-versa.

* High coverage and tracking adjustment are not required.

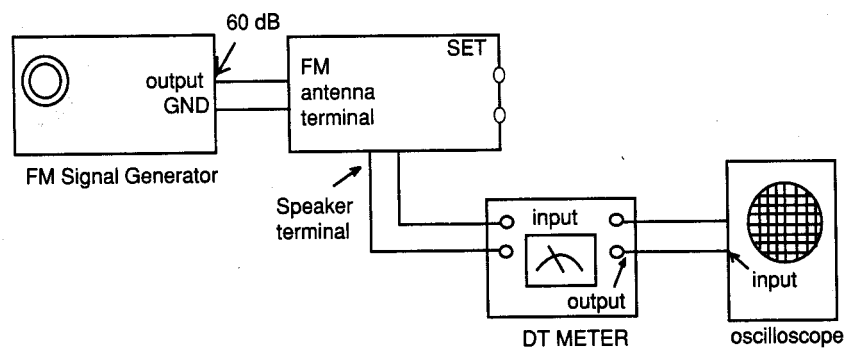


FIG. 1) IF CENTER AND T.H.D adjustment

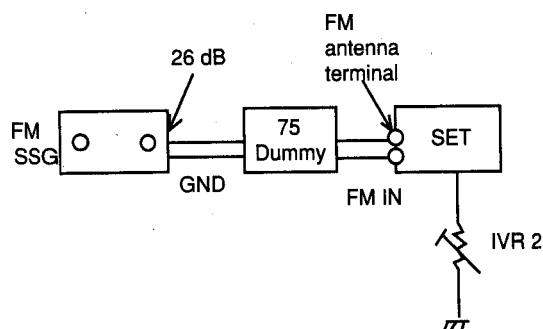


FIG. 2) AUTO SEARCH LEVEL adjustment

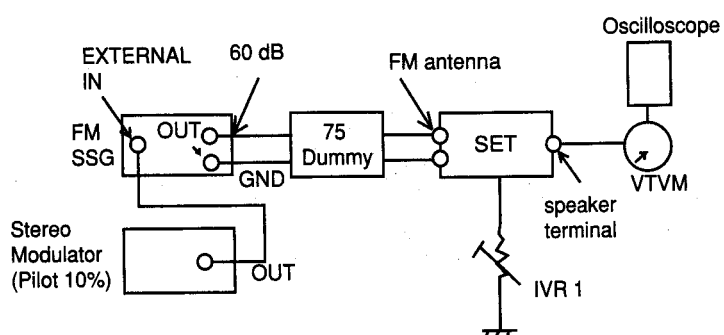


FIG. 3) FM STEREO SEPARATION adjustment

(2) AM ADJUSTMENT

① 2 BAND (FM/AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ.SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	Intermediate frequency (IF) adjustment	FIG. 4	522KHz	522KHz	IT1	Maximum output
2	AM frequency coverage adjustment	Connect DC voltmeter to TP1 and GND	—	522KHz	OL1	0.9V
3			—	1404KHz	OCT1	9V
4	Repeat step 2 and 3 several times.					
5	AM tracking adjustment	FIG. 4	594KHz	594KHz	IL1	Maximum output
6			1404KHz	1404KHz	ITC1	Maximum output
7	Repeat step 5 and 6 several times.					

② 3 BAND (FM/MW/LW) * MW band : Refer to 2 band section. (MW → AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ.SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	LW frequency coverage adjustment	FIG. 4		146KHz	OL2	0.9V
2				290KHz	OTC2	5.2V
3	Repeat step 1 and 2					
4	LW tracking adjustment	FIG. 4	155KHz	155KHz	IL2	Maximum output
5			270KHz	170KHz	ITC2	Maximum output
6	Repeat step 5 and 6 several times.					

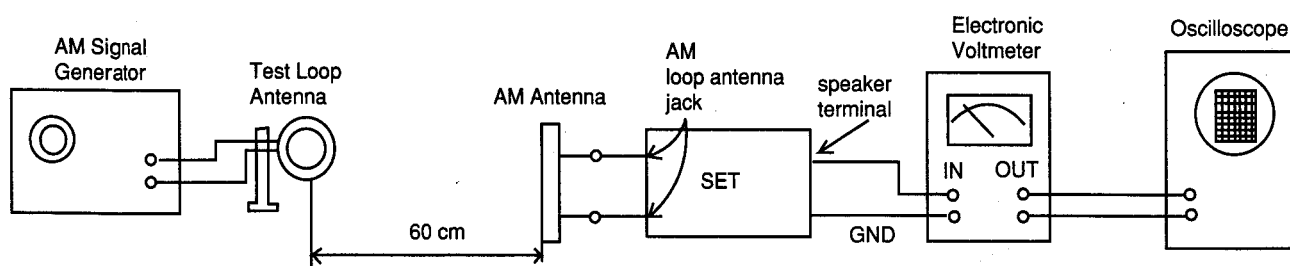


FIG. 4) AM TRACING adjustment

2. CD PLAYER

1. MEASURING INSTRUMENT

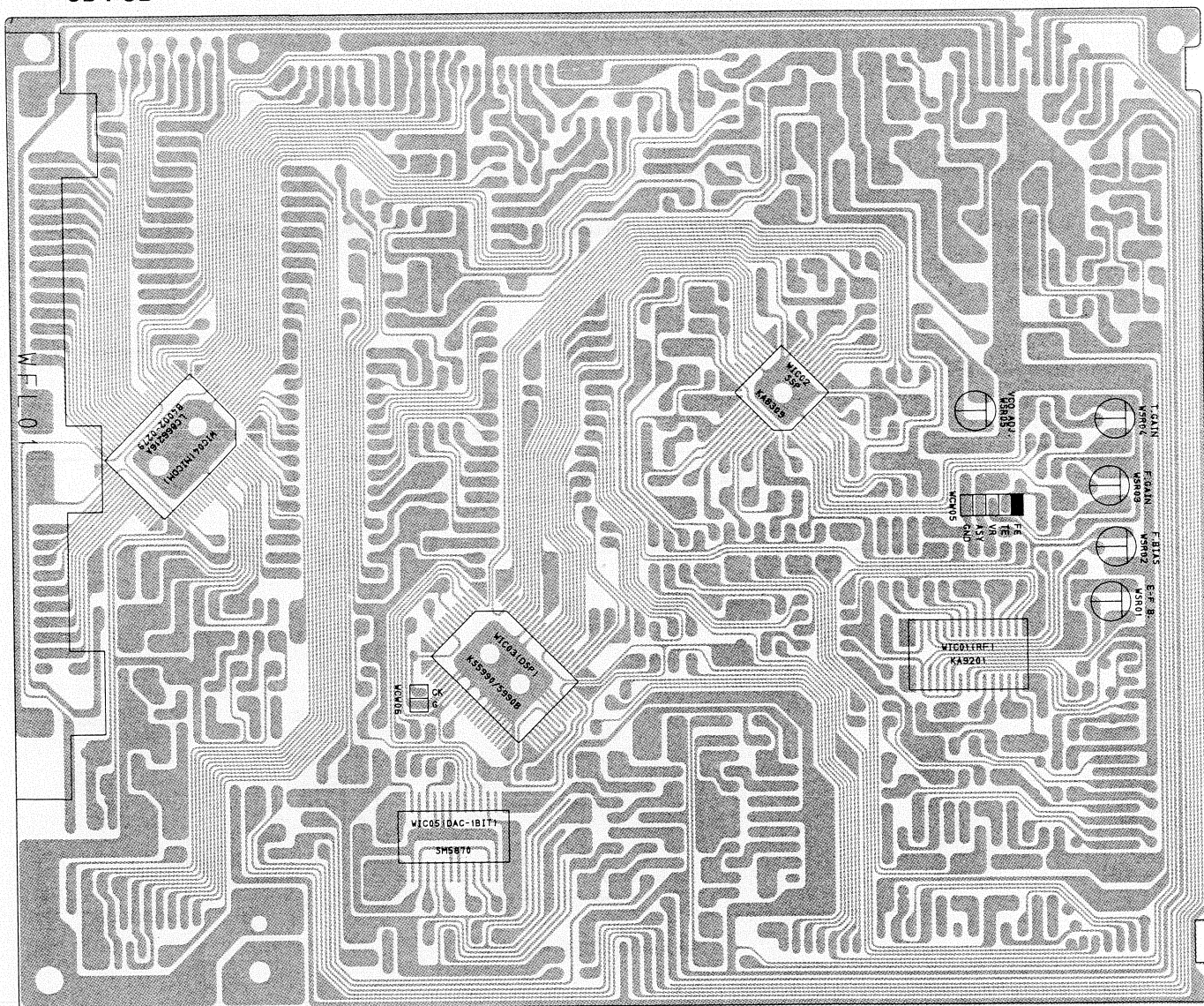
- 1) Oscilloscope (100MHz \geq Frequency)
- 2) Probe (10 : 1)
- 3) Frequency counter

2. IMPORTANT

- 1) Semi-Volume position can be a little different depending on the model.
- 2) Be sure not to use a warped or dirty disc in adjusting.
- 3) When adjusting Semi-Volume, use plastic screw driver.

3. LOCATION OF ADJUSTMENT (PARTS SIDE)

CD PCB



WSR01 ; E-F Balance adjustment

WSR02 ; Focus bias adjustment

WSR03 ; Focus gain adjustment

WSR04 ; Tracking gain adjustment

WSR05 ; VCO adjustment

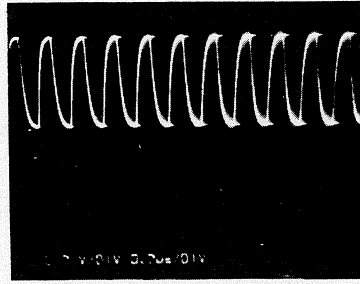
WCW05 ; WCW06 ; Adjustment point

4. ADJUSTMENT PROCEDURE

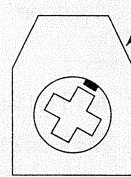
1) CLV ADJUSTMENT

- (1) Turn power on and load a disc.
- (2) Frequency counter connection.
(+) terminal ; CLK
(-) terminal ; G
- (3) Connect ASY to GND
- (4) Adjust WSR05 so the frequency counter reads 4.37MHz. (Adjust in stop mode)
- (5) Disconnect ASY from GND

CLV



ADJ. POINT



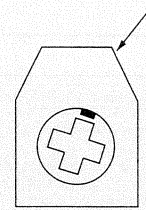
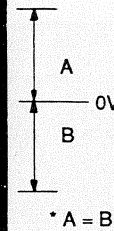
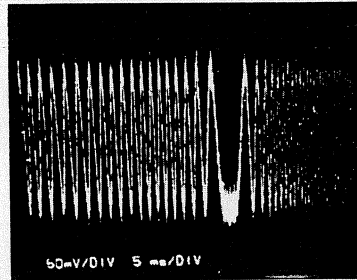
WSR05

2) E-F BALANCE ADJUSTMENT

- (1) Turn power on and load a disc.
- (2) Press play button.
- (3) Oscilloscope setting and connection

VOLT/DIV ; 50mV	{	(+) terminal ; TE
TIME/DIV ; 5mS		(-) terminal ; VR
- (4) Adjust WSR04 fully counter clockwise.
- (5) Adjust WSR01 so the waveform is as shown in the picture.
- (6) Set WSR04 back to the place it was before adjustment.

E-F BALANCE



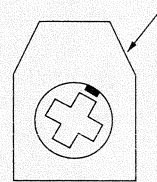
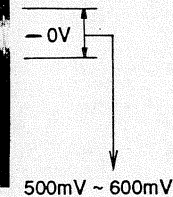
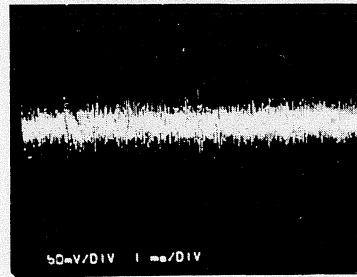
WSR01

3) TRACKING GAIN ADJUSTMENT

- (1) Turn power on and load a disc.
- (2) Press play button.
Oscilloscope setting and connection

VOLT/DIV ; 50mV	{	(+) terminal ; TE
TIME/DIV ; 1mS		(-) terminal ; VR
- (4) Adjust WSR04 so the peak to peak waveform is as shown in the picture.

TRACKING GAIN



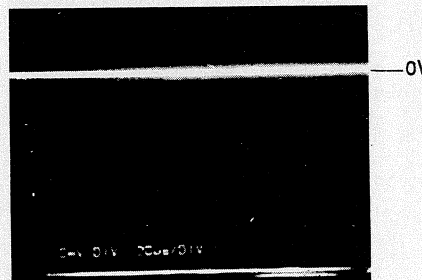
WSR04

4) FOCUS BIAS ADJUSTMENT

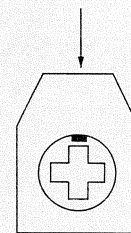
- (1) Turn power on and load a disc.
- (2) Oscilloscope setting and connection

VOLT/DIV ; 10mV	{	(+) terminal ; FE
TIME/DIV ; 20μS		(-) terminal ; VR
- (3) Adjust WSR02 so the waveform is as shown in the picture. (Adjust in stop mode).

FOCUS BIAS



0V



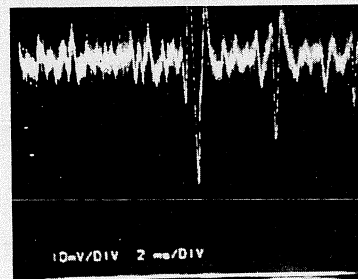
WSR02

5) FOCUS GAIN ADJUSTMENT

- (1) Turn power on and load a disc.
- (2) Press play button.
- (3) Oscilloscope setting and connection

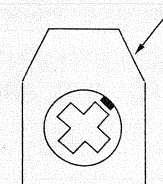
VOLT/DIV ; 10mV	{	(+) terminal ; FE
TIME/DIV ; 20mS		(-) terminal ; VR
- (4) Adjust WSR03 so the peak to peak waveform is as shown in the picture.

FOCUS GAIN



80mV

0V



WSR03

(Pictures taken in 10 : 1 probe)

3. TAPE RECORDER

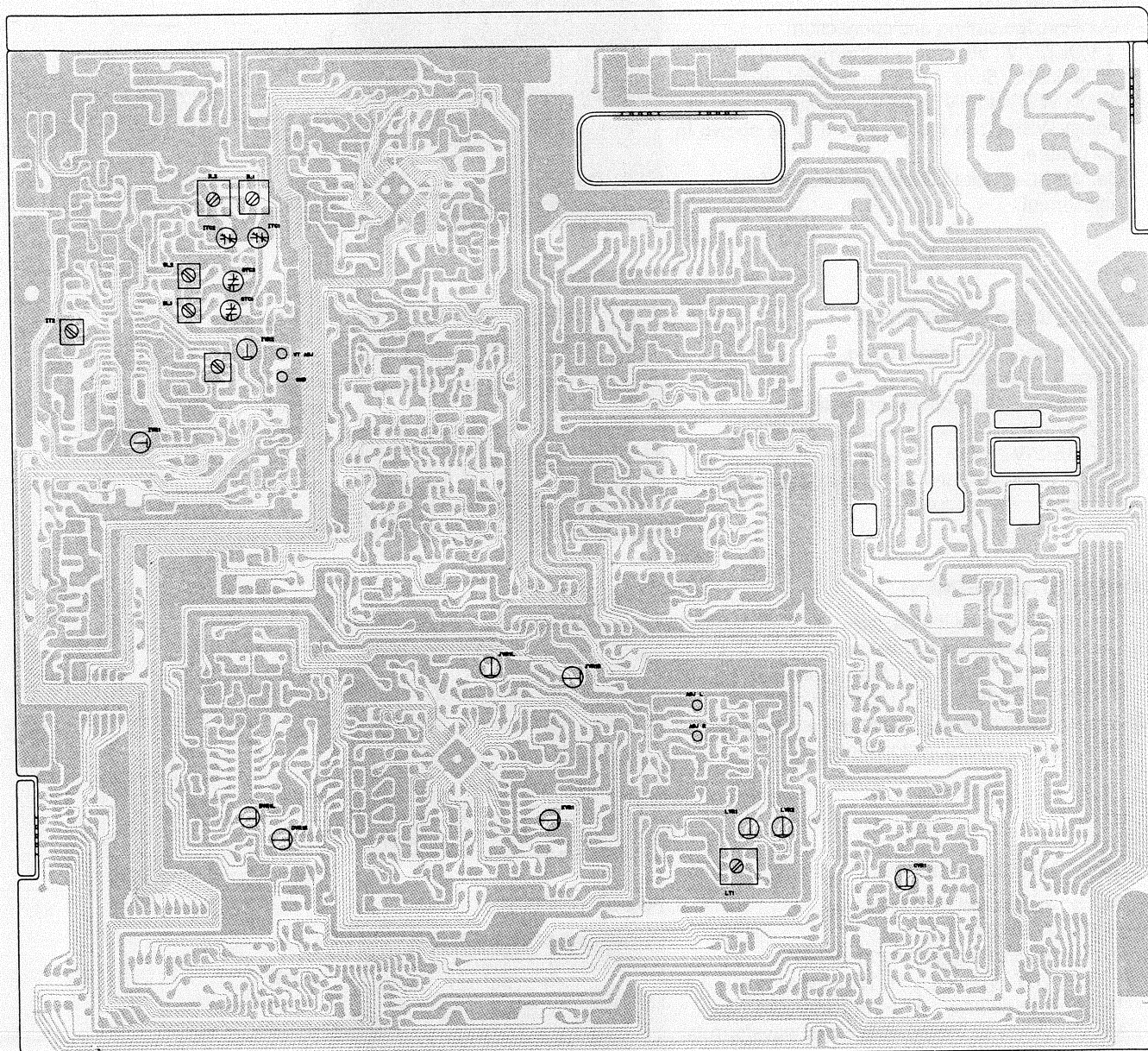
1) MEASURING INSTRUMENTS REQUIRED

- (1) Oscilloscope
- (2) VTVM
- (3) TAPE

- ① MTT-111 (or equivalent) : 3KHz signal is recorded → for tape speed adjustment
- ② MTT-5521 (or equivalent)
- ③ MTT-114NA (or equivalent) : 12.5KHz signal is recorded. → for azimuth adjustment

2) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

MAIN PCB



3) ADJUSTMENT PROCEDURE

(1) TAPE SPEED

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	Normal speed adjustment	FIG. 1	Insert MTT-111 to DECK B. Press PLAY button.	CVR 1	3KHz

(2) PLAY LEVEL

① DECK A

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	AZIMUTH	FIG. 2	Play MTT-114NA in the DECK A.	FIG. 3	Maximum output and same phase of L,R-CH Fix the screw.

② DECK B

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	AZIMUTH	FIG. 2	Play MTT-114NA in the DECK B.	FIG. 3	Maximum output and same phase of L,R-CH Fix the screw.

(3) RECORD ADJUSTMENT

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	Bias oscillation frequency adjustment	FIG. 4 (ADJL, LCH ADJ R, RCH, TPG;GND)	Record MTT-5511 in the DECK A	LT 1	105KHz
2	Bias current adjustment	FIG. 4 (ADJL, LCH ADJ R, RCH, TPG;GND)	Record MTT-5511 in the DECK A	LVR1, LVR2	42 mV
3	Signal current adjustment	FIG. 4 (ADJL, LCH ADJ R, RCH, TPG;GND)	Record MTT-5511 in the DECK A (Apply 1KHz 5mV sine wave to PHONO INPUT)	DVR1L, DVR1R	4.9mV Disconnect CN20
4	REC EQ CONTROL adjustment	FIG. 4 (ADJL, LCH ADJ R, RCH, TPG;GND)	Record MTT-5511 in the DECK A (Apply 12.5KHz 5mV sine wave to PHONO INPUT)	KVR1	Maximum

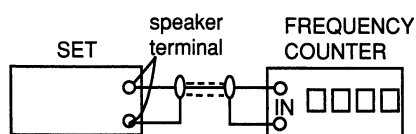


FIG.1

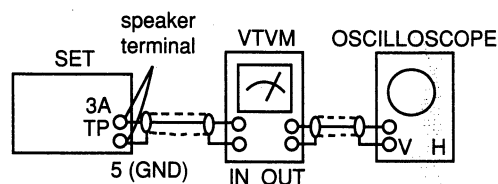


FIG.2

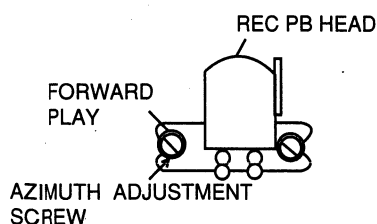


FIG.3

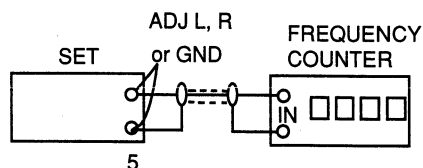
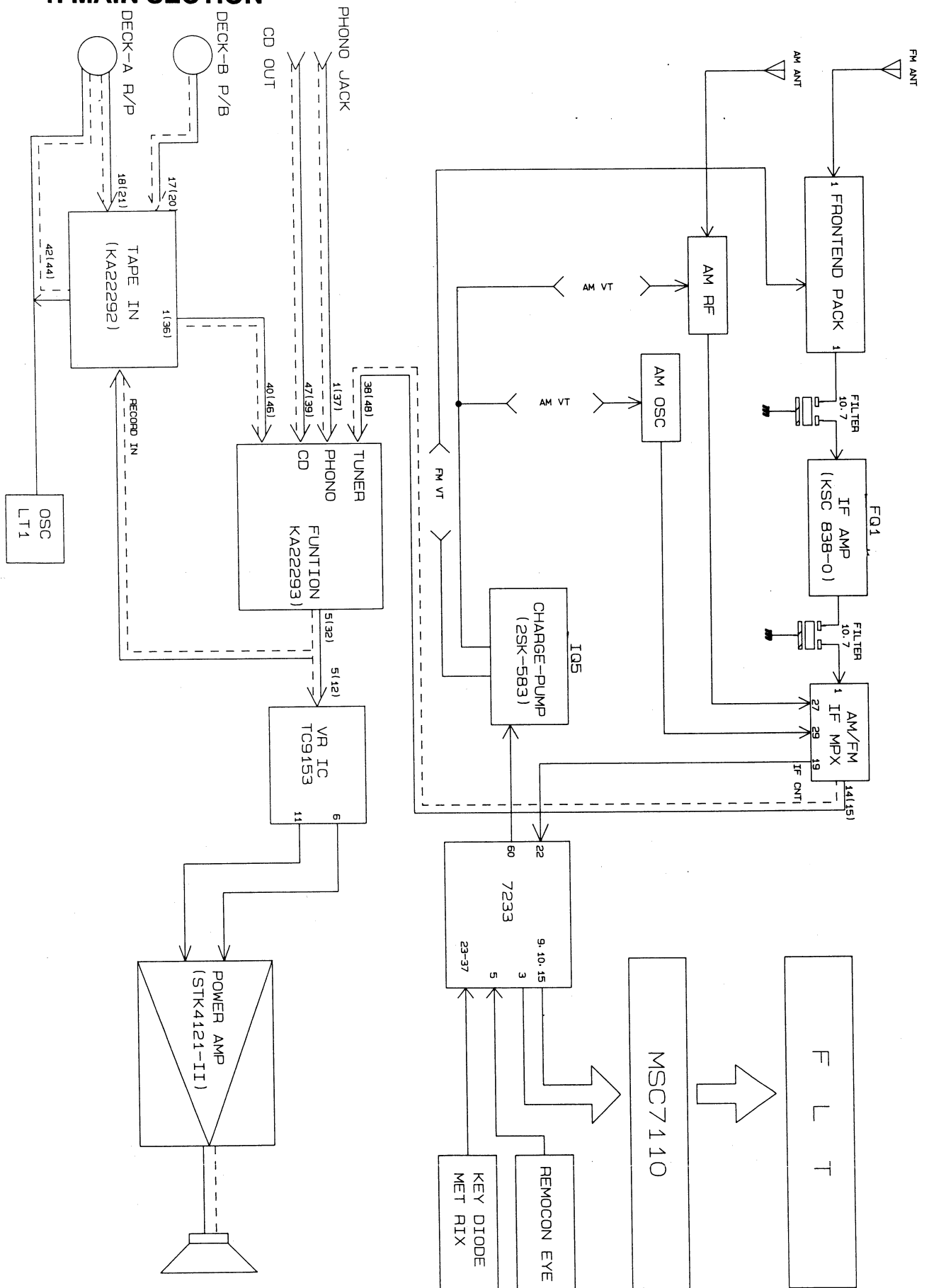


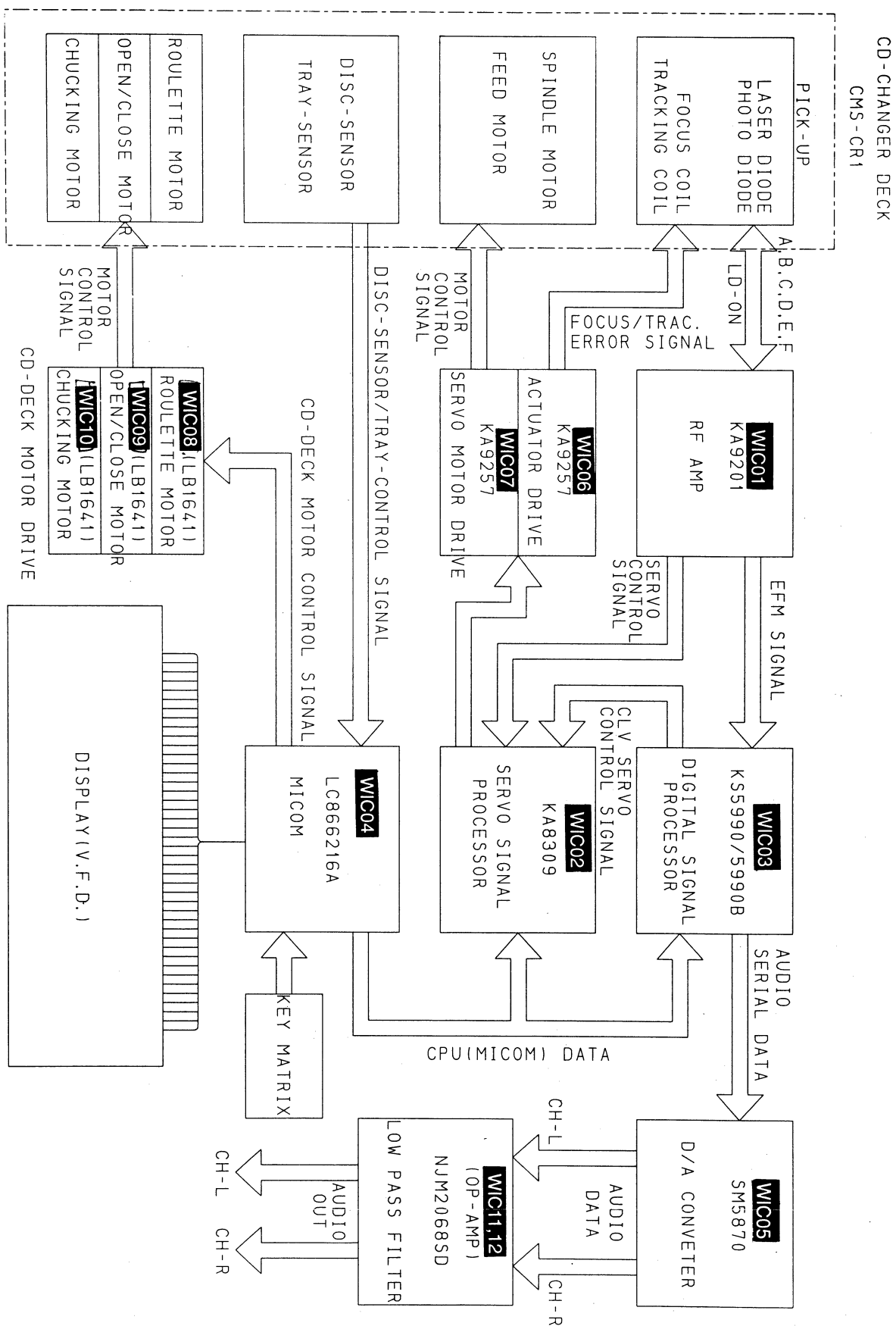
FIG.4

■ BLOCK DIAGRAM

1. MAIN SECTION



2. CD PLAYER



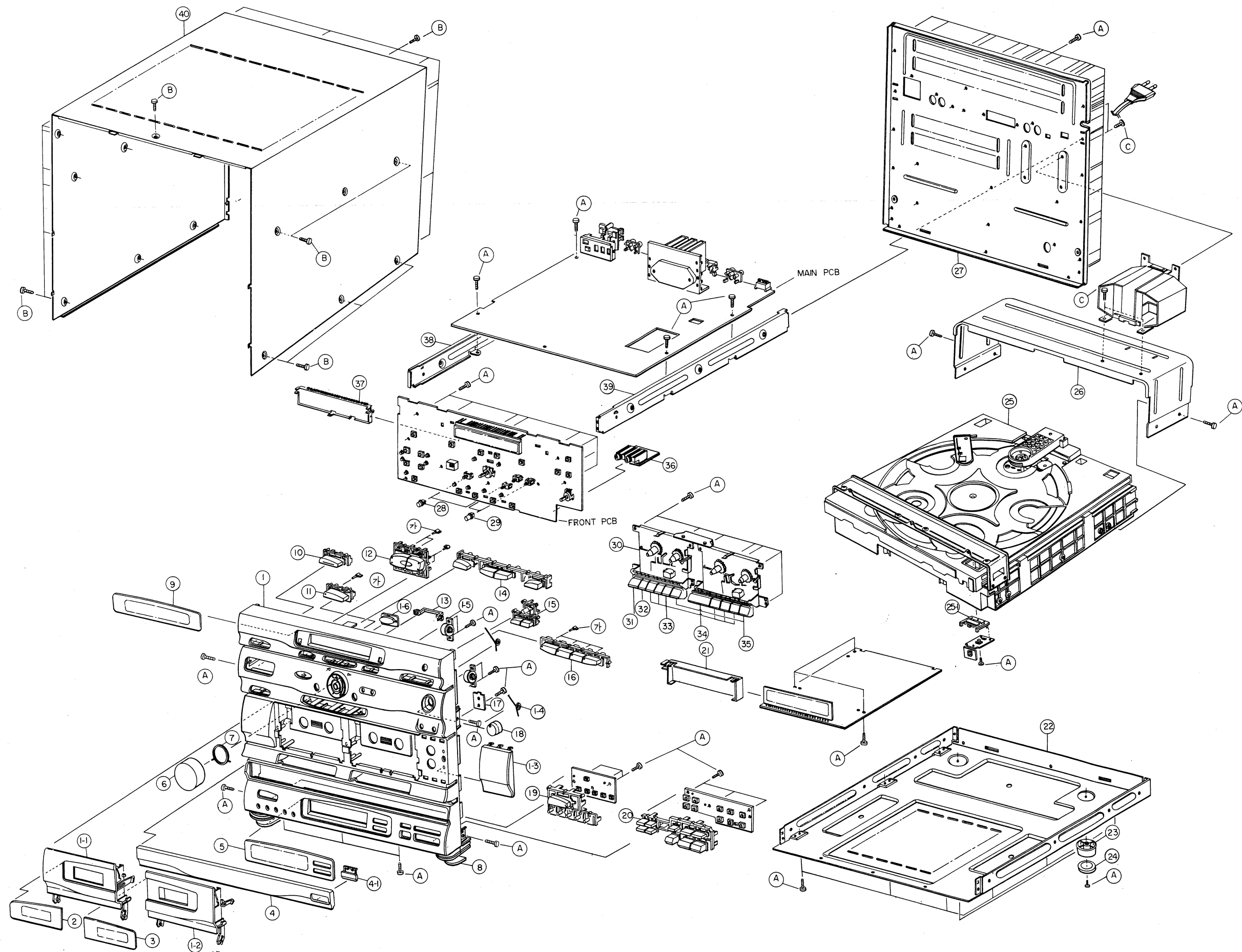
■ EXPLODED VIEW & PARTS LIST

1. MAIN SECTION

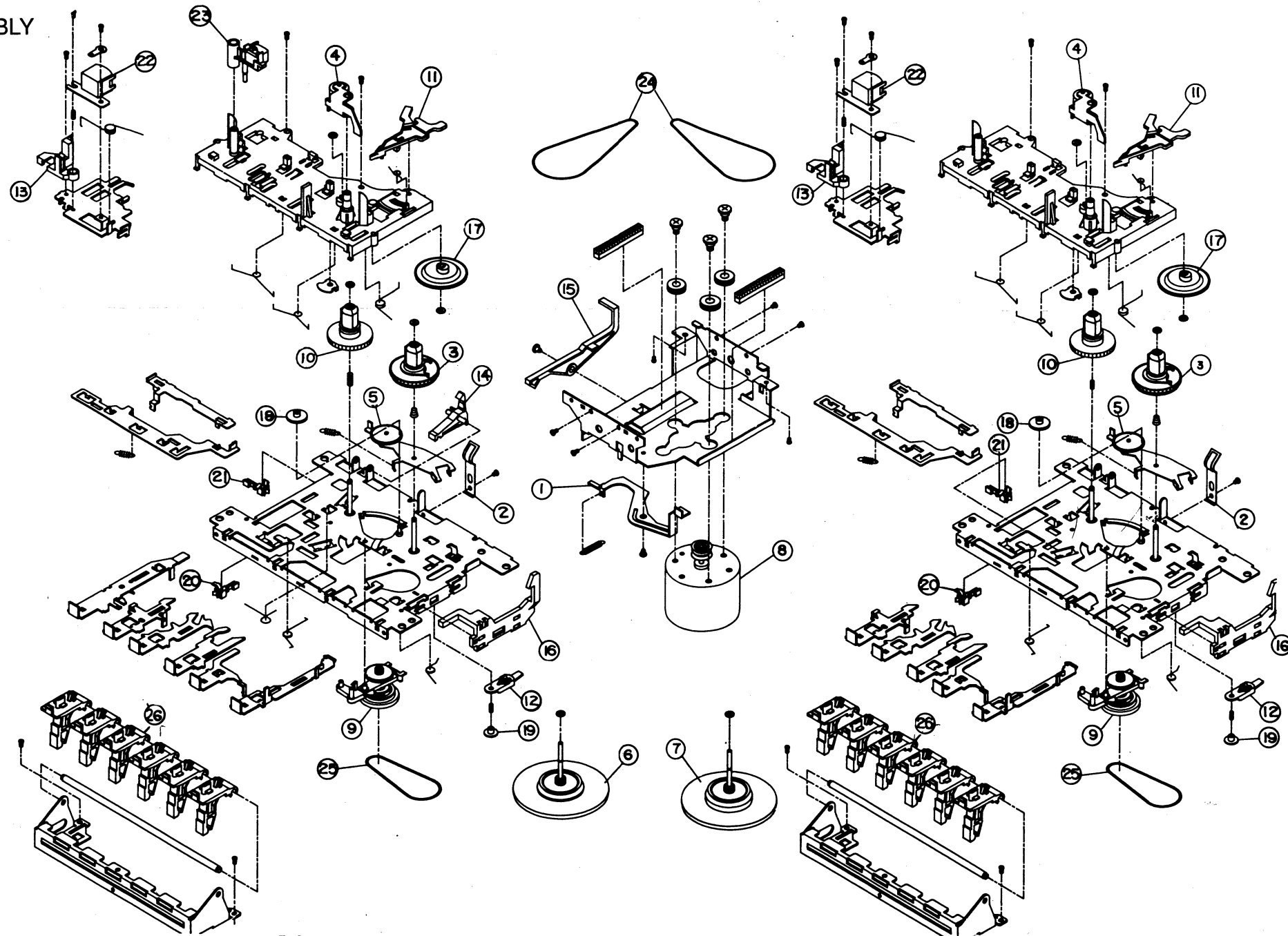
● MECHANICAL PARTS (MAIN)

Ref No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
1	12000-0122-00	CABINET-FRONT ASS'Y	1	
1-1	14042-0070-00	DOOR-CASS(A) ; ABS BLK	1	
1-2	14042-0071-00	DOOR-CASS(B) ; ABS BLK	1	
1-3	14123-0006-00	DECO-FRONT (E) ; MIPS BLK	1	
1-4	16674-568-910	SPRING-DOOR ; SUS PI0.9	2	
1-5	15214-506-011	DEMPER-ASS'Y ; POM	2	
1-6	14074-0138-00	WINDOW-REMOCON ; ACRYL	1	
A	17458-230-101	SCREW-TAP TITE BH ; 3 X 10	2	
2	14074-0156-00	WINDOW-DOOR(A) ; ACRYL	1	
3	14074-0157-00	WINDOW-DOOR(B) ; ACRYL	1	
4	19112-0012-00	ASS'Y-CD DOOR	1	
4-1	14084-0344-00	KNOB-CD (OPEN) ; ABS BLK	1	
5	14074-0155-00	WINDOW-CD ; SMOKE ACRYL	1	
6	14084-0306-00	KNOB-VOLUME ; ABS BLK	1	
7	12724-0028-00	SPRING-VOLUME ; PWR 0.7	1	
8	16174-504-210	CUSHION-FOOT ; RUBBER	2	
9	14074-0154-00	WINDOW-TUNER ; SMOKE ACRYL	1	
10	14083-0302-00	KNOB-POWER ; ABS BLK	1	
11	19113-0010-00	ASSY-KNOB(EQ PA) ; ABS BLK	1	
11-1	12714-0019-00	LENS-FUNCTION ; ACRYL CLR	1	
12	19112-0008-00	ASSY-KNOB(EQ) ; ABS BLK	1	
12-1	12714-0019-00	LENS-FUNCTION ; ACRYL CLR	4	
13	12714-0018-00	LENS-VOLUME ; ACRYL CLR	1	
14	14083-0303-00	KNOB-PRESET ; ABS BLK	1	
15	14083-0304-00	KNOB-TUNING ; ABS BLK	1	
16	19113-0011-00	ASSY-KNOB (FUN) ; ABS BLK	1	
16-1	12714-0019-00	LENS-FUNCTION ; ACRYL CLR	4	
17	13014-0105-00	BRKT-MIC PCB ; SBHG 1.0T	1	
18	14084-0308-00	KNOB-BALANCE ; ABS BLK	1	
19	14083-0309-00	KNOB-DISC SKIP ; ABS BLK	1	
20	14082-0310-00	KNOB-CD PLAY ; ABS BLK	1	
21	13322-0087-00	HOLDER-FLT CD ; ABS BLK	1	
22	12001-0124-00	CABINET-BOTTOM ; SECC 0.8T	1	
23	16174-502-120	FOOT ; RUBBER	2	
24	16174-503-810	FOOT-CONTACT ; EVA RUBBER	2	
25	* CMS-CRI	CMS-CR1	1	
25-1	14083-0345-00	KNOB-CD(DS) ; ABS BLK	1	
26	12201-0077-00	CHASSIS-P/T ; SBHG 1.2T	1	
27	12001-0125-00	CABINET-REAR ; SECC 0.8T	1	
28	14084-0346-00	KNOB-PUSH(S) ; ABS BLK	2	
29	14084-0347-00	KNOB-PUSH (H) ; ABS BLK	2	
30	17159-0045-00	TAPE-DECK ; ADR 2006 FW	1	
31	14083-0348-00	KNOB-REC(CA) ; ABS BLK	1	
32	14083-0349-00	KNOB-PLAY (CA) ; ABS BLK	1	
33	14083-0313-00	KNOB-CASS (S) ; ABS BLK	6	
34	14083-0315-00	KNOB-CASS (L) ; ABS BLK	1	
35	14083-0314-00	KNOB-PAUSE ; ABS BLK	2	
36	19129-0058-5C	MIC PCB ASS'Y	1	
37	13322-0017-00	HOLDER-FL ; ABS BLK	1	
38	12202-0075-00	CHASSIS-FRAME (L) ; SECC 1.0T	1	
39	12202-0076-00	CHASSIS-FRAME (R) ; SECC 1.0T	1	
40	12000-0123-00	CABINET-TOP ; VINYL STEEL	1	
A	17458-230-101	SCREW-TAP TITE BH ; 2S-3 X 10	50	
B	17458-230-103	SCREW-TAP TITE BH ; 3 X 10 FZB	17	
C	17128-540-083	SCREW-TAP TITE BH ; 2S 4 X 8 FZB	4	

● EXPLODED VIEW (MAIN)



EXPLODED VIEW 2. CASSETTE DECK ASSEMBLY



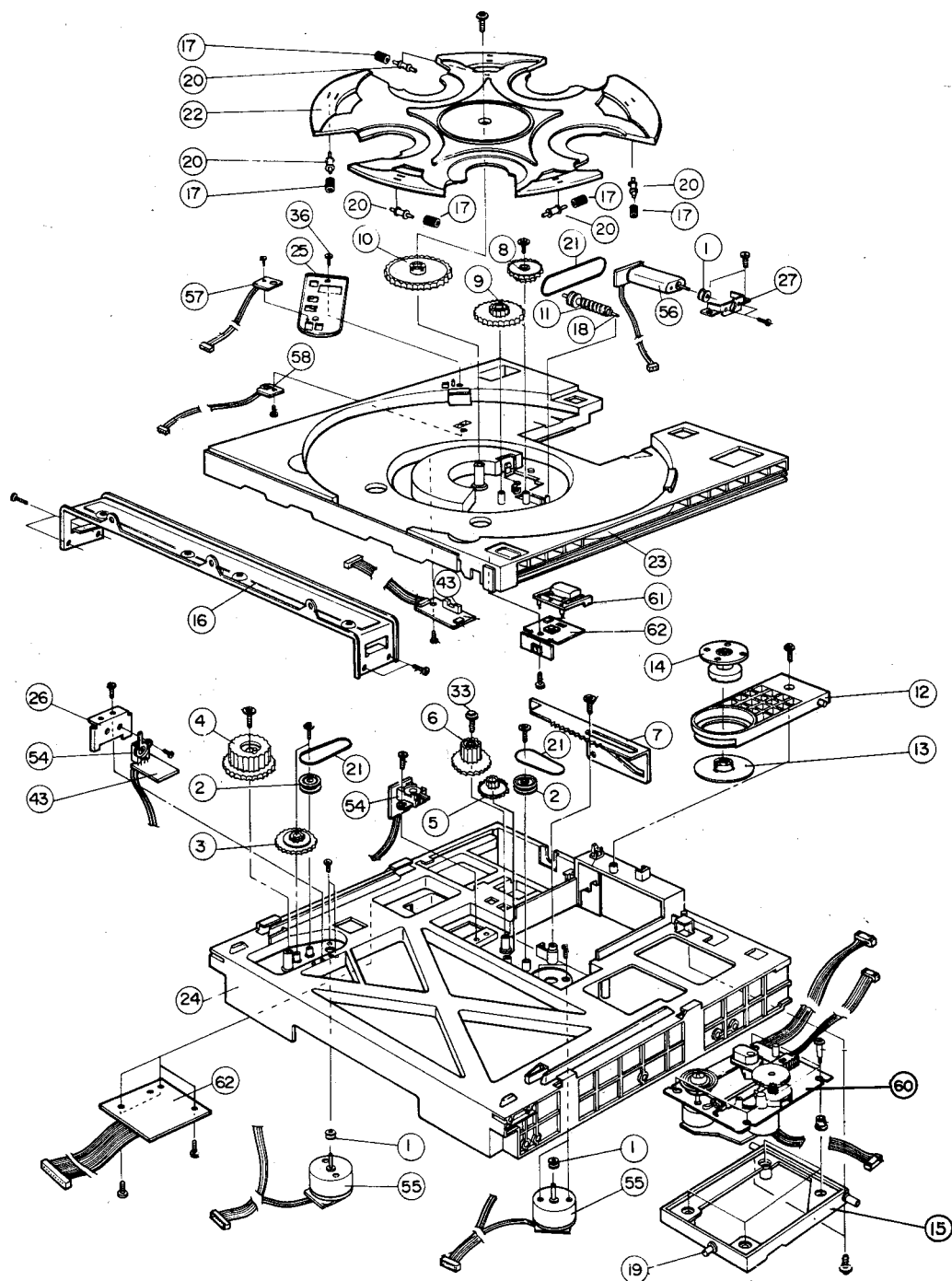
PARTS LIST

Ref No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
1	17159-0045-00	DECK-CASSETTE ; ADR2006 FW	1	
2	10000-607-186	LEVEL-SYNCHRO ; 11134-01280AA	1	
3	10000-607-146	SP PACK ; 51299-02506XC	2	
4	10000-607-101	TAKE UP REEL ASSY ; ADR28-010	2	
5	10000-607-103	PINCH ARM ASSY ; ADR26-001	2	
6	10000-607-104	IDLER ARM ASSY ; ADR02-042	2	
7	10000-607-105	FLYWHEEL GEAR S ASSY ; ADR15-021	1	
8	10000-607-106	FLYWHEEL GEAR D ASSY ; ADR15-022	1	
9	10000-502-020	MOTOR ; EG530YD2B	1	
10	10000-607-108	FR ARM ASSY	2	
11	10000-607-109	SUPPLY REEL GEAR ASSY	2	
12	10000-607-117	ARM-SENSOR 11102-00530AA	2	
13	10000-607-111	PAUSE LOCK CAM	2	

Ref No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
13	10000-607-113	HEAD BASE M	2	
14	10000-607-145	LEVEL REC SAFETY ; 11134-01000AA	1	
15	10000-607-184	LEVEL-RELEASE ; 11134-01240AA	1	
16	10000-607-160	LEVEL EJECT (F) ; 11134-01220AA	2	
17	10000-607-114	CAM GEAR	2	
18	10000-607-115	F.F GEAR ; 11128-00055AA	2	
19	10000-607-116	PAUSE CAP ; 11116-00011AA	2	
20	10000-607-178	LEAF SW (MAIN) ; MSW1541 XACV	2	
21	10000-607-179	LEAF SW (REC) MSW1716CV	1	
22	10000-523-008	R/P HEAD ; MS15R-AA2N1	2	
23	10000-607-162	ARM-MAGNETIC ; 11102-00520AA	1	
24	10000-607-159	BELT MAIN ; 59.7PI X 1.0T	2	
25	10000-607-156	BELT SUB ; 34.7 PI X 1.0T	2	
26	10000-607-128	BUTTON KNOB ; 11133-00010AA	12	

3. CD PLAYER DECK ASSEMBLY (CMS-CR1)

● EXPLODED VIEW



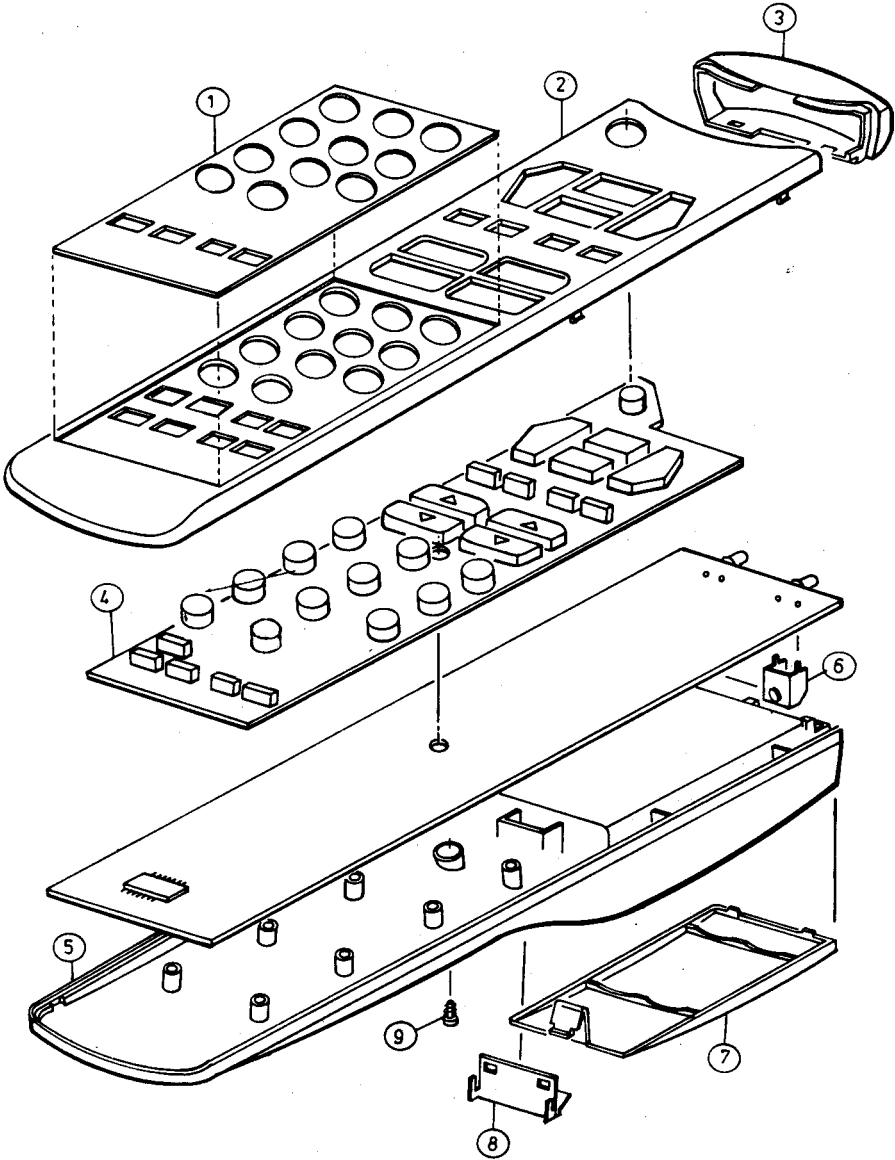
● PARTS LIST

(Service Available Parts)

Ref No.	CODE No.	DESCRITION & SPECIFICATION	Q'TY	REMARK
1	11504-0006-00	PULLEY-MOTOR ; CMS-CR1 D4.0 POM	2	
2	11474-0032-00	GEAR-PULLEY ; CMS-CR1 M0.6 Z16 SP POM	2	
3	11474-0033-00	GEAR-TRAY (1) ; CMS-CR1 M0.6/M0.6 Z50/Z17 SP	1	
4	11474-0034-00	GEAR-TRAY (2) ; CMS-CR1 M0.8/M0.6 Z44/Z68 SP	1	
5	11474-0035-00	GEAR-UD (1) ; CMS-CR1 M0.5/M0.6 Z17/Z45 SP	1	
6	11474-0036-00	GEAR-UD (2) ; CMS-CR1 M0.8/M0.5 Z19/Z60 SP	1	
7	11473-0037-00	GEAR-CAM ; CMS-CR1 M0.8 Z21 SP POM	1	
8	11474-0038-00	GEAR-ROULETTE (1) ; CMS-CR1 M0.5/M0.5 Z24/Z50 SP	1	
9	11474-0039-00	GEAR-ROULETTE (2) ; CMS-CR1 M0.8 Z60 SP POM	1	
10	11474-0040-00	GEAR-ROULETTE (3) ; CMS-CR1 M0.8/M0.5 Z22/Z72 SP	1	
11	11474-0031-00	GEAR-WORM ; CMS-CR1 M0.5 Z11 POM	1	
12	13322-0091-00	HOLDER-CHUCK ; CMS-CR1 BLK PC (GLASS 20%)	1	
13	12223-0009-00	TABLE-CHUCK ; CMS-CR1 T6.8 BLK	1	
14	13014-0119-00	BRACKET-CHUCK ; CMS-CR1 T0.8 WHT SECC	1	
15	11533-0026-00	LEVER-LIFER (DECK) ; CMS-CR1 L115	1	
16	13012-0118-00	BRACKET-FRAME ; CMS-CR1 T1.2 WHT SECC	1	
17	11524-0004-00	ROLLER-RUBBER ; CMS-CR1 D6.5 L4 CR (NEOPLENE)	5	
18	11404-0052-00	SHAFT-WORM ; CMS-CR1 D2.5 L40 SUS304	1	
19	11404-0053-00	SHAFT-DECK ; CMS-CR1 D5.5 L15.7 SUS304	1	
20	11524-0003-00	ROLLER-DISC ; CMS-CR1 D4 POM	5	
21	11494-0004-00	BELT-CISC ; CMS-CR1 FR W1.5 T1.5 L67.23 CR	3	
22	13601-0008-00	TRAY-ROULETTE ; CMS-CR1 W168.4 L168.4 ABS	1	
23	13600-0009-00	TRAY-DISC ; CMS-CR1 W343 L364 ABS	1	
24	12200-0084-00	BASE-MAIN ; CMS-CR1 BLK ABS	1	
25	13014-0120-00	BRACKET-SENSOR ; CMS-CR1 T1.0 WHT SECC	1	
26	13014-0121-00	BRACKET-SWITCH ; CMS-CR1 T1.0 WHT SECC	1	
27	13014-0184-00	BRACKET-MOTOR ; CMS-CR1 T1.2 WHT SECC	1	
43	16219-0003-00	SENSOR-ROULETTE ; SG-207 CMS-CR1	1	
54	B3006-0048	SW-SLIDE ; 2C2P NSH 12V 50DEG. CMS-CR1 SSCF21	2	
55	B3070-0002	MOTOR-DC ; RF-500TB 9V	2	
56	16829-0006-00	MOTOR-DC ; FF-180SH-11310 7.6V	1	
57	16219-0002-00	SENSOR-DO ; EL-S3G CMS-CR1	1	
58	16219-0001-00	SENSOR-DI ; ST-23G CMS-CR1	1	
60	*CMS-V30NM6	DECK-CD ; CMS-V30	1	ASS'Y
61	14083-0345-00	KNOB-CD (DS); SCM8300 BLK ABS	1	
62	CMSCR1PCB	PCB SUB ASS'Y ; CMS-CR1	1	ASS'Y

4. REMOTE CONTROL

● EXPLODED VIEW



● PARTS LIST

Ref No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
1	14014-0005-00	INLAY-REMOCON ; PC T05 BLK	1	
2	12002-0054-00	CABINET-TOP ; ABS94HB T2 BLK MQ360R	1	
3	12713-0008-00	LENS-REMOCON ; PC MQ360R T2.5	1	
4	14083-0136-00	KNOB-REMOCON ; SILICON BLK MQ360R	1	
5	12001-0055-00	CABINET-BOTTOM ; ABS94HB T2 BLK MQ360R	1	
6	12724-0016-00	SPRING- GEAR ; TS STS-W PI05	2	
7	13313-0026-00	COVER-BATTERY ; ABS94HB T1.5 BLK MQ360R	1	
8	12724-0047-00	SPRING-BATTERY ; PS SUS T0.3 W15.5 L9M	1	
	11449-518-101	CONDENSER AXIAL-LED ; 50V UP050 B100-K	2	
	12149-401-150	TRANSISTOR ; KSD471-Y, TAPE	1	
	14539-504-030	CERAMIC-RESONATOR ; CSB455EBL	1	
	B4012-0014	IC-LINEAR ; LC7464M-8117 SOP REMOCON	1	

ELECTRICAL PARTS LIST

1. MAIN SECTION

⚠ indicates parts for circuit safe guarding purpose. Therefore, when replacing, be sure to use specified parts only.

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
RR2	11048-477-821	R-METAL OXIDE ; RS1T 820-J MINI TYPE	1	⚠
AR9L,9R	11048-477-479	R-METAL OXIDE ; RS1T 4.7-J MINI TYPE	2	⚠
RR12,RR1	11048-577-331	R-METAL OXIDE ; RS2T 330-J MINI TYPE	2	⚠
AR4,7	11058-223-101	R-FUSIBLE ; CRF 1/4W 100-J	2	
RFR2	11058-377-011	R-FUSIBLE ; RF1/2T 1-J	1	⚠
RFR1	11058-477-109	R-FUSIBLE ; BF 1T 1-J	1	⚠
CVR1,IVR1	11249-102-024	VR - SEMI TAPE-H ; EVN - DJA A03B53 (5k)	2	
DVR1L,1R,IVR2	11249-102-064	VR - SEMI TAPE-H ; DVN-DJA A03B54 (50K)	2	
JVR1L,1R	11249-102-074	VR - SEMI TAPE-H ; DVN-DJA A03B15(100K)	2	
RC1,2	11607-105-222	C-ELECTROLYTIC ; MS SMS 35V 2200M(16X31)	2	
RC3	11607-105-332	C-ELECTROLYTIC ; MC SMS 35V 3300M(18X35.5)	1	
ITC1,2,OTC1,2	11829-512-030	C-TRIMMER ; TZ03R 20P	4	
QIC3	12119-401-720	IC-ANALOG SWITCH ; TC4066BP	1	
RIC1	12109-401-690	IC-REGULATOR ; MC7812C/KIA7812P	1	
QIC4	12119-101-830	IC-E/C VR ; TC9153 AP	1	
IIC1	12119-102-720	IC AM, FM, IF ; LA1851N	1	
AIC1	12119-208-500	IC-POWER ; STK 4121-2	1	
QIC1.5	12119-401-630	IC-DUAL OPAMP ; MC4558S/NJM4558S	2	
RIC2	12119-601-770	IC-REGULATOR ; MC7805	1	
RQ1	12139-103-560	TRANSISTOR ; KSA 614-0	1	
CQ2,5,6,LQ2,IQ6,7	12149-101-520	TRANSISTOR ; KSA 733-Y, TAPE	6	
CA1,QQ1,2,3,1L,1R,2L,QQ2R,3L,3R,4L,4R	12139-301-310	TR-W/RESISITOR ; KSC 1009-Y	12	
EQ1	12149-301-820	TRANSISTOR ; KSC 1222-L, TAPE	1	
CQ4,DQ1L,1R,OQ1,EQ2,KQ1,2,3,4,3L,3R,RQ5,6,CQ7,IQ1,2	12149-301-900	TRANSISTOR ; KSC 945-Y, TAPE	16	
IQ4	12159-301-520	TR-DIGITAL ; KSR 1004	1	
KQ1L,1R,2L,2R,RQ3,4,LQ1	12149-301-930	TRANSISTOR ; KSC 1008-Y, TAPE	7	
RQ2	12149-401-070	TRANSISTOR ; KSD 73-Y	1	
CQ3	12149-401-150	TRANSISTOR ; KSD 471-Y, TAPE	1	
QQ4,5	12159-301-330	TR-DIGITAL ; KSR2003, TAPE	3	
AQ1,BQ1,IQ3	12159-301-760	TR-DIGITAL ; KSR2004	3	
RD10,20,2,3,4,5,6	12169-201-080	DIODE-RECTIFIER ; 1N 4001, TAPE	7	
RZD5.CZD1	12169-403-210	DIODE-ZN ; UZP 4.7B/RD4.7F	2	
RZD1,2	12169-403-910	DIODE-ZN 1W11.4-12.6V UZP-12B	2	
OWC1	12169-501-005	DIODE ; KV1236	1	
ILF1L,1R	12450-304-040	COIL-LOW PASS FILTER ; FV-A D-BASE	2	
IT2	12619-020-067	COIL 7 CAN ; AB FM BLU	1	
IT1	12619-030-005	COIL-CAN AC 450KHz YEL	1	
OL2	12619-047-202	COIL-CAN AD510UH 220KHz BRN	1	
OL1	12619-047-203	COIL-CAN ; AD 110UH 796KHz RED	1	
IL1	12619-561-000	COIL-MW ANT ; MURHN-K5268KAI 250MH	1	
IL2	12619-566-913	COIL TRANS TEN, CAN ; AF 2.4MH FLW RED	1	
LT1	12619-577-771	COIL-BIAS OSC ; RCHNS-5371EQJ	1	
SPK	13303-500-620	TERMINAL-BOARD PUSH, N ; 4P PUSH HOOK	1	
	13339-417-030	JACK-RCA ; 2P (S-434)	2	
FCF1,2,3	14529-301-770	FILTER CERAMIC ; SFE 10.7MJ RED	3	
ICE2	14539-504-100	CERAMIC RESONATOR ; CSB456F 15	1	
	A3059-0006	TERMINAL-BOARD PUSH ; SP-030 4P ANT	1	
BIC1	A4006-0016	IC-ASIC ; KA22293 QFP 48	1	
JIC1	A4012-0214	IC-LINEAR ; KA22292 QFP PRE AMP	1	
	B1290-0001	TUNER-FM ; FE415-G11 4G 750HM	1	
	14529-301-753	FILTER-CERAMIC ; SFE 10.7 MS3G-A-TF21	2	
630MA	14709-241-160	FUSE ; T250V 0.63A	1	⚠

2. FRONT SECTION

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
UIC3	12119-101-820	IC-SW ; TC9135P	1	
UQ1	12149-301-900	TRANSISTOR ; KSC 945-Y, TAPE	1	
UQ4	12159-301-760	TR DIGITAL ; KSR2004	1	
UQ2,3	12159-301-790	TR DIGITAL ; KSR1009	2	
UD19	12169-201-080	DIODE-RECTIFIER ; 1N 4001, TAPE	1	
UZD1	12169-404-110	DIODE-ZN ; RD5.6 FB/UZP-5.6B	1	
	12199-101-080	REMOCON EYE ; MM-001A (CD22R MESH)	1	
ULD7,8,9,10,11,3,4,5,6	12309-117-520	LED-AMBER ; SEL 3913K TP5 TAPPING	9	
MIC/HEAD PH	13339-113-020	JACK-HEADPHONE ; HLJ2316-01-3040 12/9.5	2	
USW2, ASW1, KSW1,2	13529-203-930	SW-PUSH ; SPEA122S CO11	4	
UX1	14539-003-010	CRYSTAL-UNIT ; HC49-U4.5MHz	1	
QVR1	A1050-0014	VR-ROTARY ; RK16K 1170Z02-53W 50KW	1	
USW1	A3012-0007	SW-ROTARY ; RK 16K 1170	1	
UFL1	A4153-0029	V.F. DISPLAY ; SVA-13BS05 SCM9100 TUNER	1	
	B1104-0170	C-ELEC ; AC310-502-G473Z5R5 CA92 W5.5V	1	
UIC3	B4002-0264	IC-MCU ; LC7233N-8805 SCM8300 QFP	1	
QIC4	B4008-0888	IC-DRIVE ; MSC7110-01SS DIP F.L.T	1	

3. CD PLAYER

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
WR34,XR19, 20	11018-175-222	R-METAL FILM ; RN1/8T 2.2K-F	3	
WR22,23,30,32,35,36	11018-175-223	R-METAL FILM ; RD1/8T 22K-F	6	
WR33	11018-175-332	R-METAL FILM ; RN 1/8T 3.3K-F	1	
WR31,37,38,46	11018-175-333	R-METAL FILM ; RN 1/8T 33K-F	4	
RR02	11018-377-152	R-CARBON ; RD 0.5T 1.5K-J	1	
WR47	11048-577-101	R-METAL OXIDE ; RS2T 100-J MINI TYPE	2	
UR320	11058-277-229	R-FUSIBLE ; RF 1/4T 2.2J	1	
WSR01,02,03,04	11249-102-044	VR-SEMI TAPE-H ; DVN-DJA A03B24 (20K)	4	
WSR05	11249-102-104	VR-SEMI TAPE-H ; DVN-DJA A03B23 (2K)	1	
RC3	11607-104-222	C-ELECTROLYTIC ; MC SMS 25V 2200M (16X25)	1	
WIC05	12109-303-280	IC-1BTTDAC ; SM5870CS	1	
WIC14, 16	12109-401-730	IC-REGULATORS ; MC7808BF 85W	2	
WIC06, 07	12119-202-920	IC-BTL DRIVER ; KA9257	2	
WIC08, 09, 10	12119-203-500	IC MOTOR DRIVER ; LB 1641	3	
WIC02	12119-203-780	IC-SSPROCESSOR ; KA8309/KA8309B	1	
WIC01	12119-203-790	IC-RF AMP ; KA9201	1	
WIC11, 12	12119-401-760	IC-OP AMP ; NJM2068SD/UPC4570HA	2	
WIC13	12119-601-160	IC-REGULATOR ; TA78L005/MC78L05AC	1	
WIC15	12119-601-770	IC-REGULATOR ; MC7805	1	
RQ01	12139-103-560	TRANSISTOR ; KSA 614-0	1	
UQ301	12149-101-520	TRANSISTOR ; KSA733-Y, TAPE	1	
WQ01	12149-202-050	TRANSISTOR ; KSB564A-Y	1	
RQ02, YQ03, 04	12149-301-900	TRANSISTOR ; KSC 945-Y, TAPE	3	
YQ02	12159-301-330	TR-DIGITAL ; KSR2003, TAPE	1	
XQ01,UQ302,303,304	12159-301-780	TR DIGITAL ; KSR1003	4	
WQ02, 03	12159-301-800	TR-DIGITAL ; R1007/108M/124 X S	2	
WD10, 11	12169-201-080	DIODE-RECTIFIER ; 1N 4001, TAPE	2	
WD01,02,03,04,05	12169-301-400	DIODE-SWITCH ; 1N 4148M ROHM(SMALL)	8	
06,07,14				
WZD03	12169-404-790	DIODE ZENER ; 500MW UZ 5.6BSB TAPING	1	
WZD01, 02	12169-404-800	DIODE ZENER ; 500MW UZ 6.2BSB TAPING	2	
WFL01	13322-0087-00	HOLDER-FL CD ; SCM8300 BLK ABS	1	
WX02	14539-503-083	CERAMIC-RESONATOR ; CSA 16.93M X 040-TF01	1	
WX01	14539-503-130	CERAMIC-RESONATOR ; CSA 12.0MT	1	
WIC15, 16	15684-505-820	HEAT-SINK (CD) ; AL 1.0T SCM-7000	2	
WIC03	A4012-0111	IC-LINEAR ; KS5990/59910-YC QFP CD-DSP	1	
WFL01	A4153-0051	V.F. DISPLAY ; SVA 10SS02 CD-CHANGE ROUL	1	
WIC04	B4002-0279	IC-MCU ; LC866216A-5406 SCM-8300CD QFP	1	
WSW01~16	13559-901-100	SWITCH-TACK ; SKHV 10910A	16	

3. GENERAL SECTION

1) AC110V/220V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/TRANS VOLTAGE SELECTOR POWER CORD	A1199-0069	TRANS-POWER ; EI66 X 40 AC110V/220V 60Hz/50Hz	1	⚠
	13599-502-020	VOLT SELECTOR ; PCB 00120353A(354) 110V/220V	1	⚠
	A6006-0187	POWER CORD ; KKP-419C KLCE-2F/0.75 W/S	1	⚠
	14709-241-220	FUSE ; T250V 1.25A 20EUR	1	⚠
	14709-241-160	FUSE ; T250V 0.63A	1	⚠

2) AC 120V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/TRANS	A1199-0069	TRANS-POWER ; EI66 X 40 AC115/230V 60/50Hz	1	⚠
	A1199-0069	TRANS-POWER ; EI660 X 40 AC120V 60Hz UL/CSA	1	⚠
	A6006-0193	POWER CORD ; KKP-10 SPT-1#2/18 2MT W/S	1	⚠
	A6006-0195	POWER CORD ; KKP-10W SPT-1#2/18 2MT W/S	1	⚠
	14709-241-220	FUSE ; T250V 1.25A 20 EUR	1	⚠

3) AC 230V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/TRANS POWER CORD	A1199-0069	TRANS-POWER ; EI 115/230V 50/60Hz DC21V BLK	1	⚠
	A6006-0187	POWER CORD ; KKP-419C KLCE-2F/0.75 W/S	1	⚠
	14709-241-160	FUSE ; T250V 0.63A	1	⚠

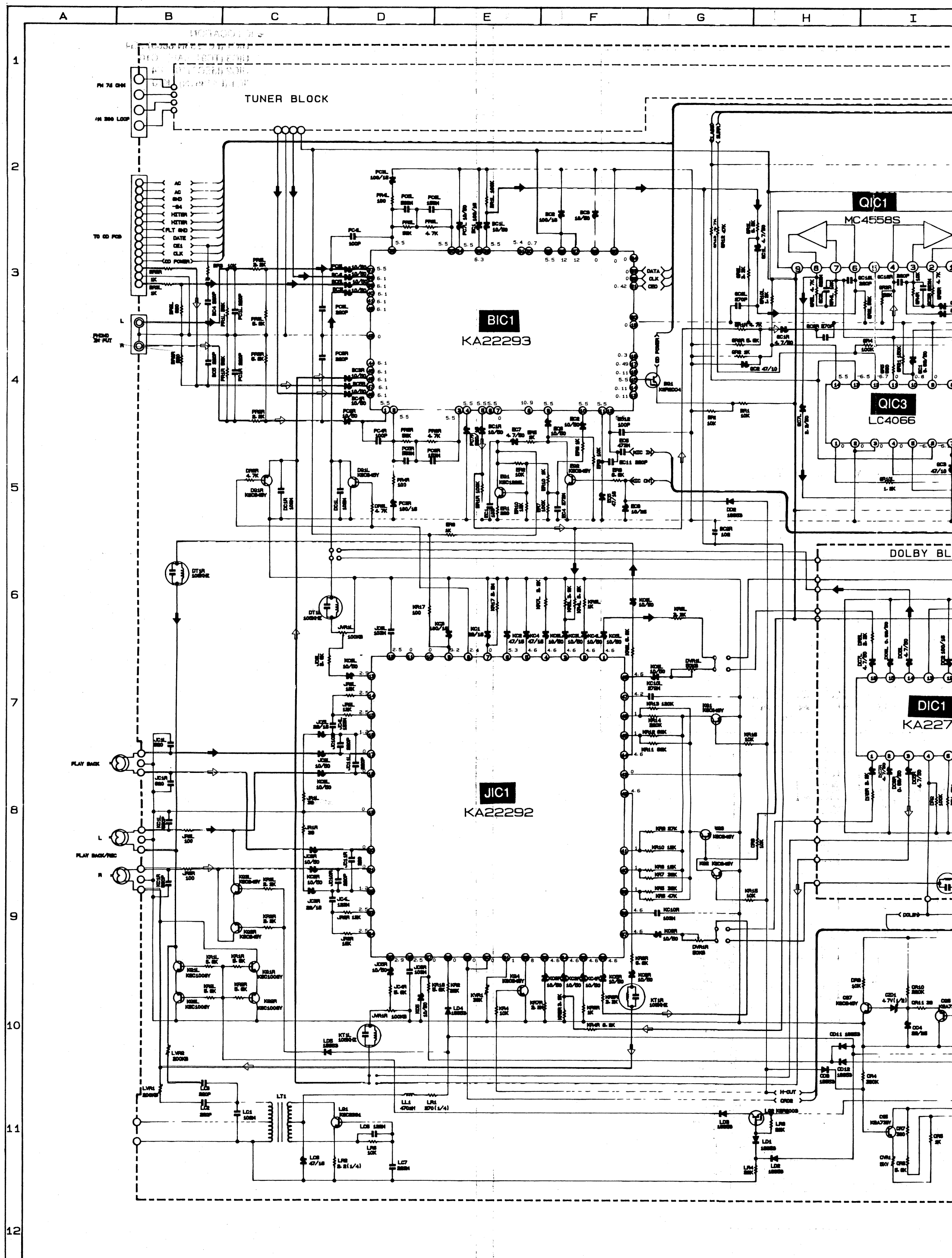
4) AC 110V-130V/220V-240V UNIT

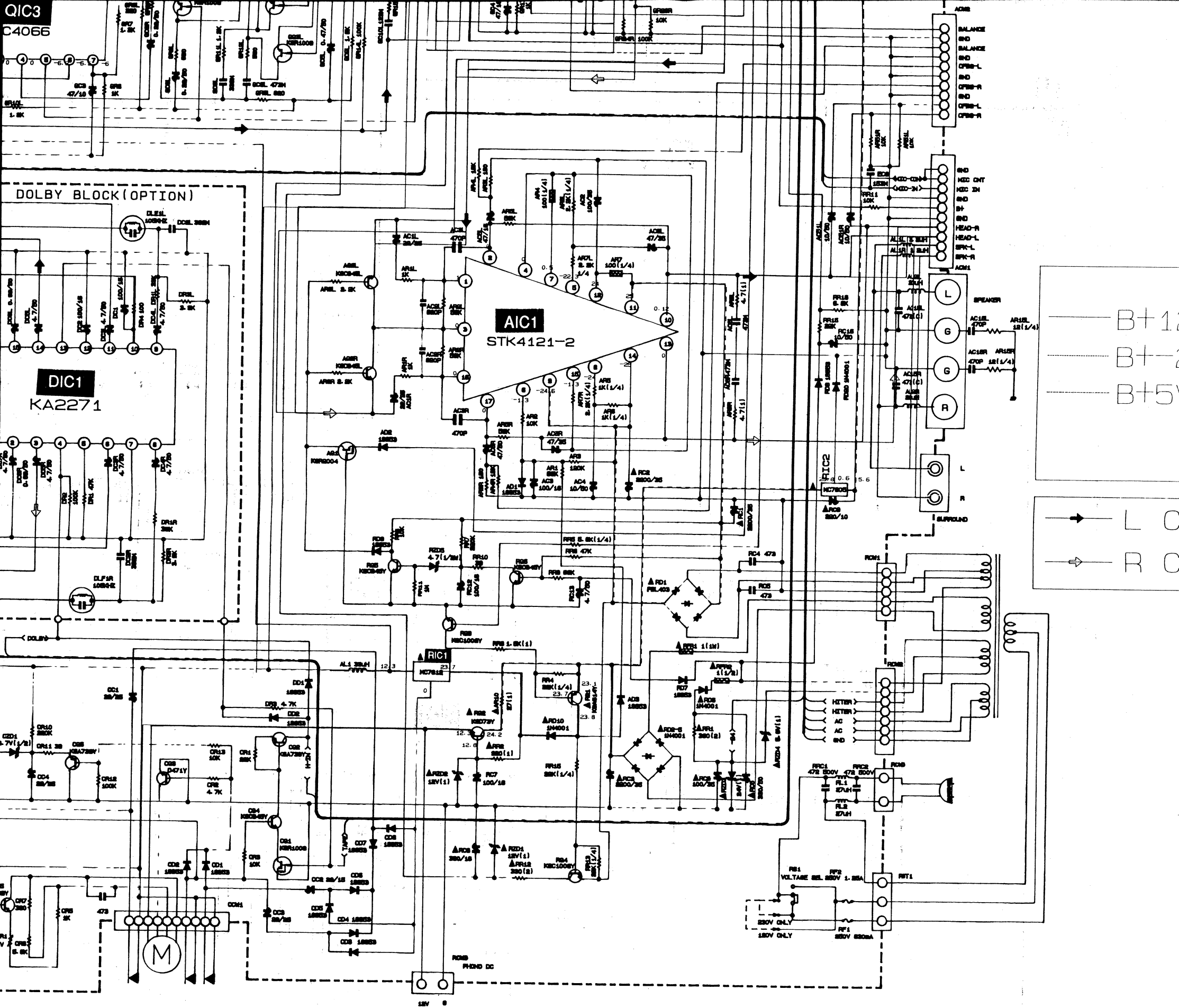
LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/TRANS POWER CORD	A1199-0069	TRANS-POWER ; EI 66 X 40 AC115/230V 60Hz/50Hz	1	⚠
	A6006-0187	POWER CORD ; KKP-419 KLCE-2F/0.75 W/S	1	⚠
	14709-241-160	FUSE ; T250V 0.63A	1	⚠
	14709-241-220	FUSE ; T250V 1.25A 20 EUR	1	⚠

5) AC 240V UNIT

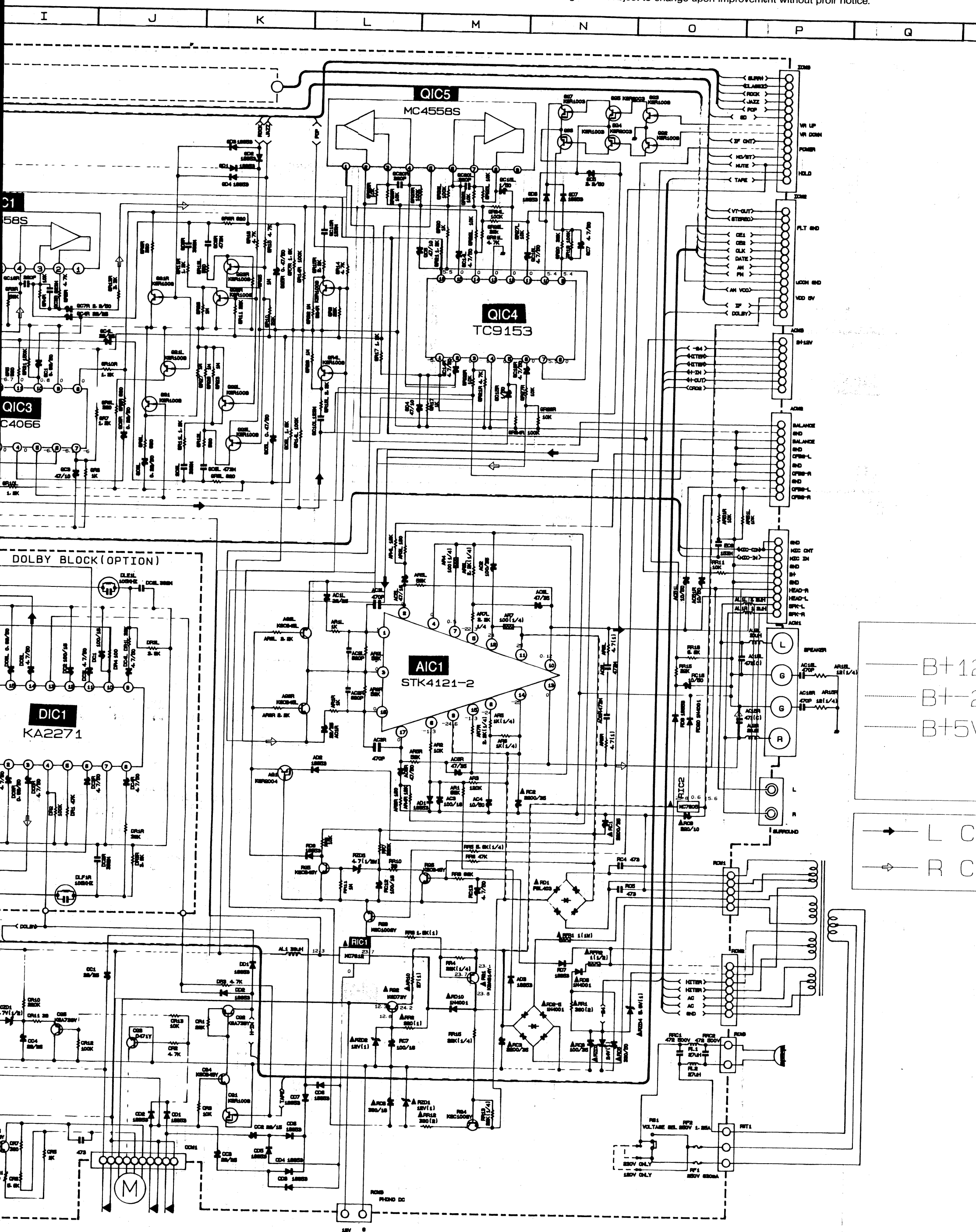
LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/TRANS POWER CORD	A1199-0069	TRANS-POWER ; EI 66 X 40 AC115/230V 60Hz/50Hz	1	⚠
	A6006-0177	POWER CORD ; KP-702 LTSA-2F/0.75 2MT BLK	1	⚠
	14709-241-160	FUSE ; T250V 0.63A	1	⚠

1. MAIN SECTION



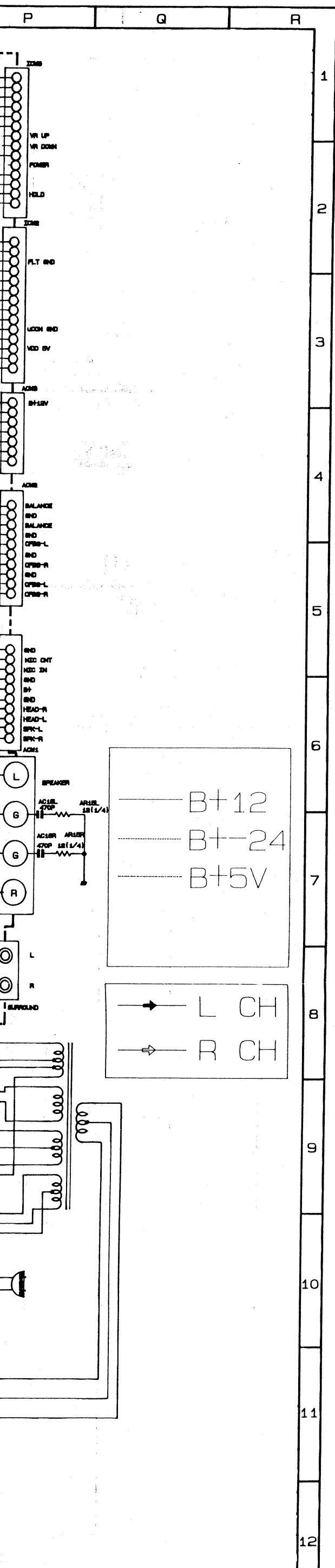


1. The unit of all resistors is Ω unless otherwise stated. (K : K Ω , M : M Ω). All resistors are 1/4W or 1/8W unless otherwise stated.
2. The unit of all capacitors is μF unless otherwise stated. (P : FF).
3. The schematic diagram is subject to change upon improvement without prior notice.



M : M Ω). All resistors are 1/4W or 1/8W unless otherwise stated.

without prior notice.



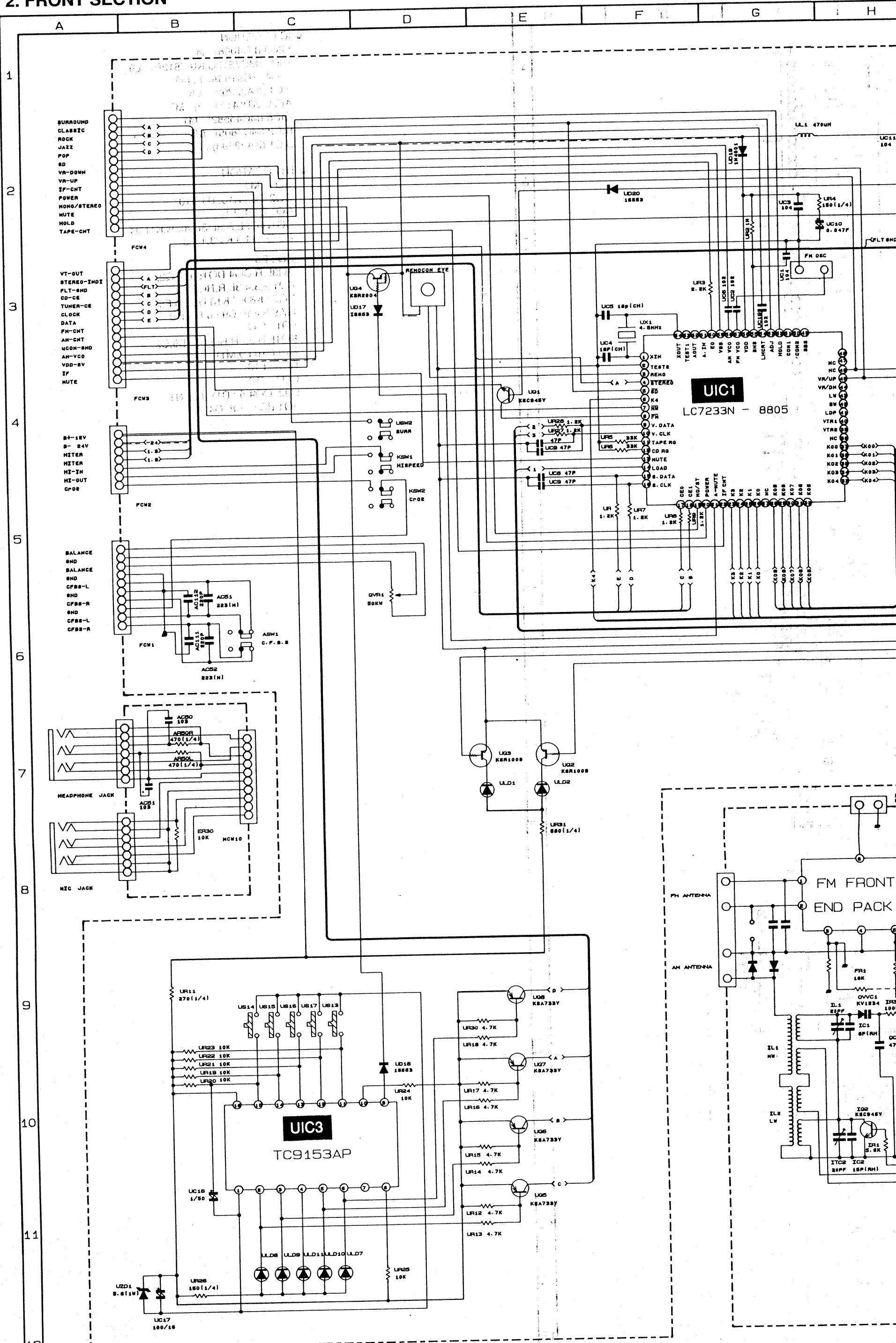
● IC LOCATION

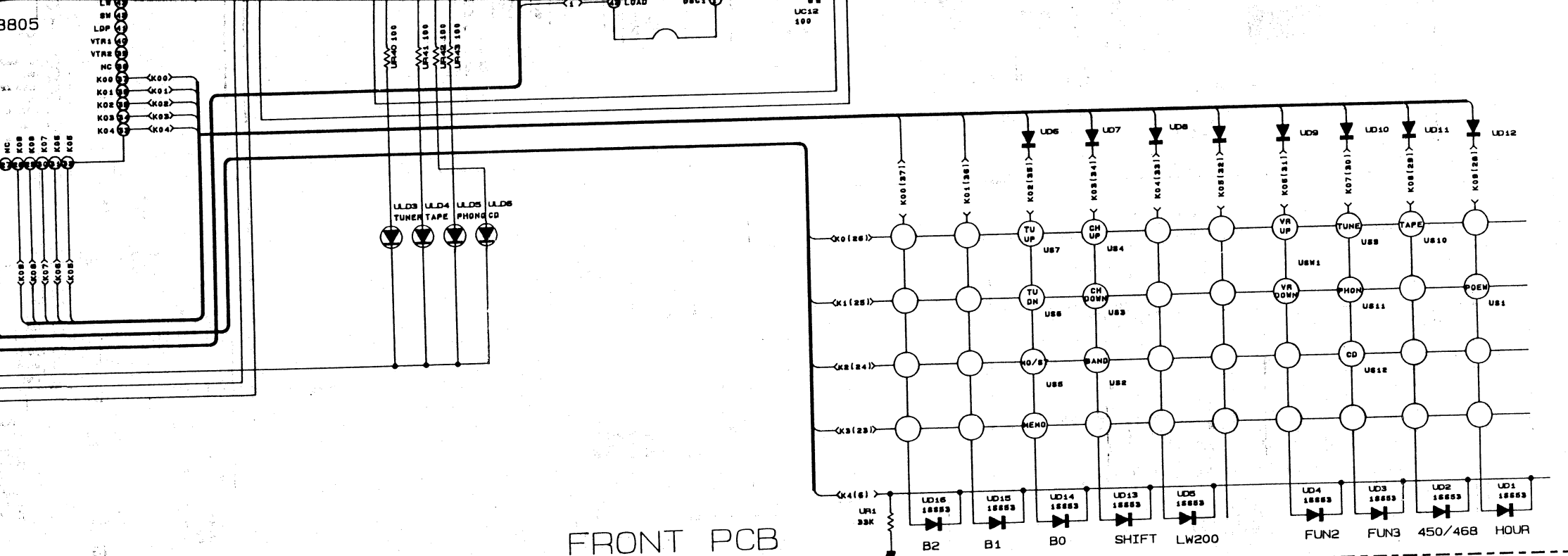
QIC3 (LC4066) : I4
RIC1 (MC7812C/KIA7812P) : L9
QIC4 (TC9153AP) : M3
JIC1 (KA22292) : E8
AIC1 (STK4121 - 2) : M7
QIC5 (MC45582) : M1
RIC2 (MC7805) : 08
BIC1 (KA22293) : E3

● TR LOCATION

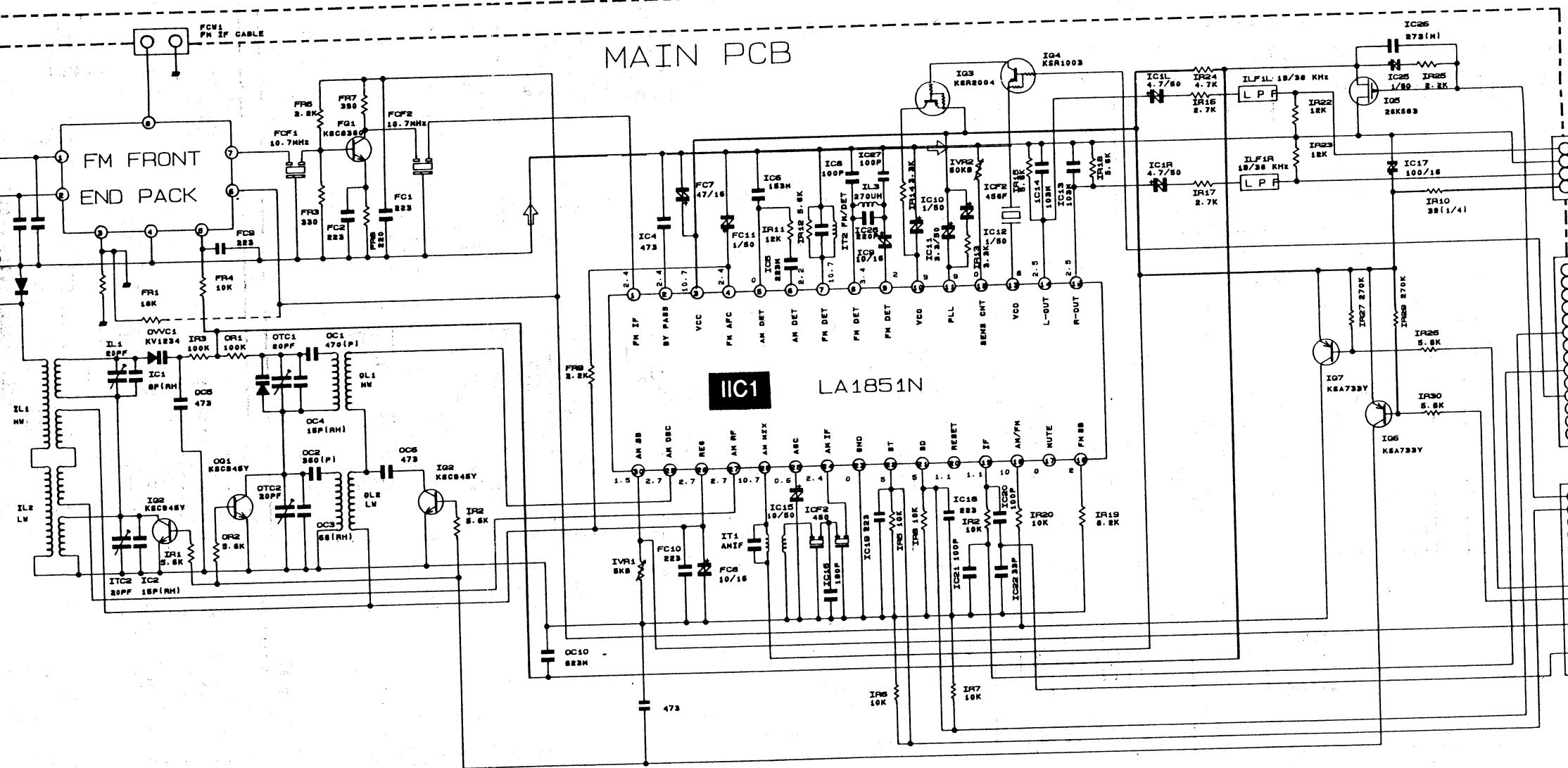
RQ1 : M9
CQ2,5,6 : K10, I11, I10
CQ1,QQ1,2 1L
CQ1R,L,2L,R,3L,3R,4L,R:K11,J4,
O2,O1,J4,3,K4,3,I 4,3
EQ : E5
AQ8L,R,CQ4,DQ1L,R,EQ2,
KQ1,2,3,4,3L,R,RQ5,6,
CQ7 : K6,K7,K10,D5,C5,F5,
G7,9,8,E10,C9,L8,M8,I10
LQ1 : D11
KQ1L,R,2L,R,RQ3,4,: B9,C9,
B10,C10,L9,M11
RQ2 : L10
CQ3 : J10
LQ2, QQ4,5 : D11, N2, N1
AQ1,BQ1 : K8, G4

2. FRONT SECTION





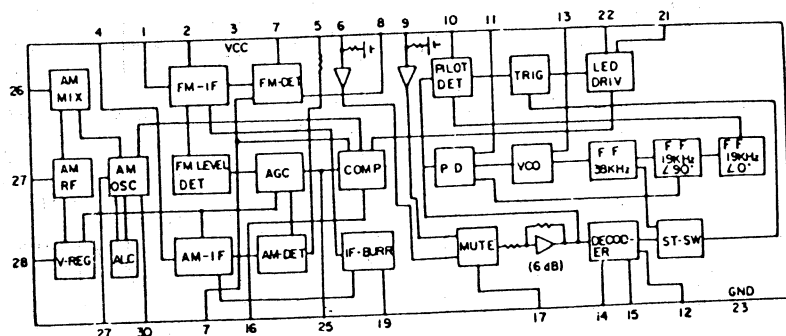
FRONT PCB

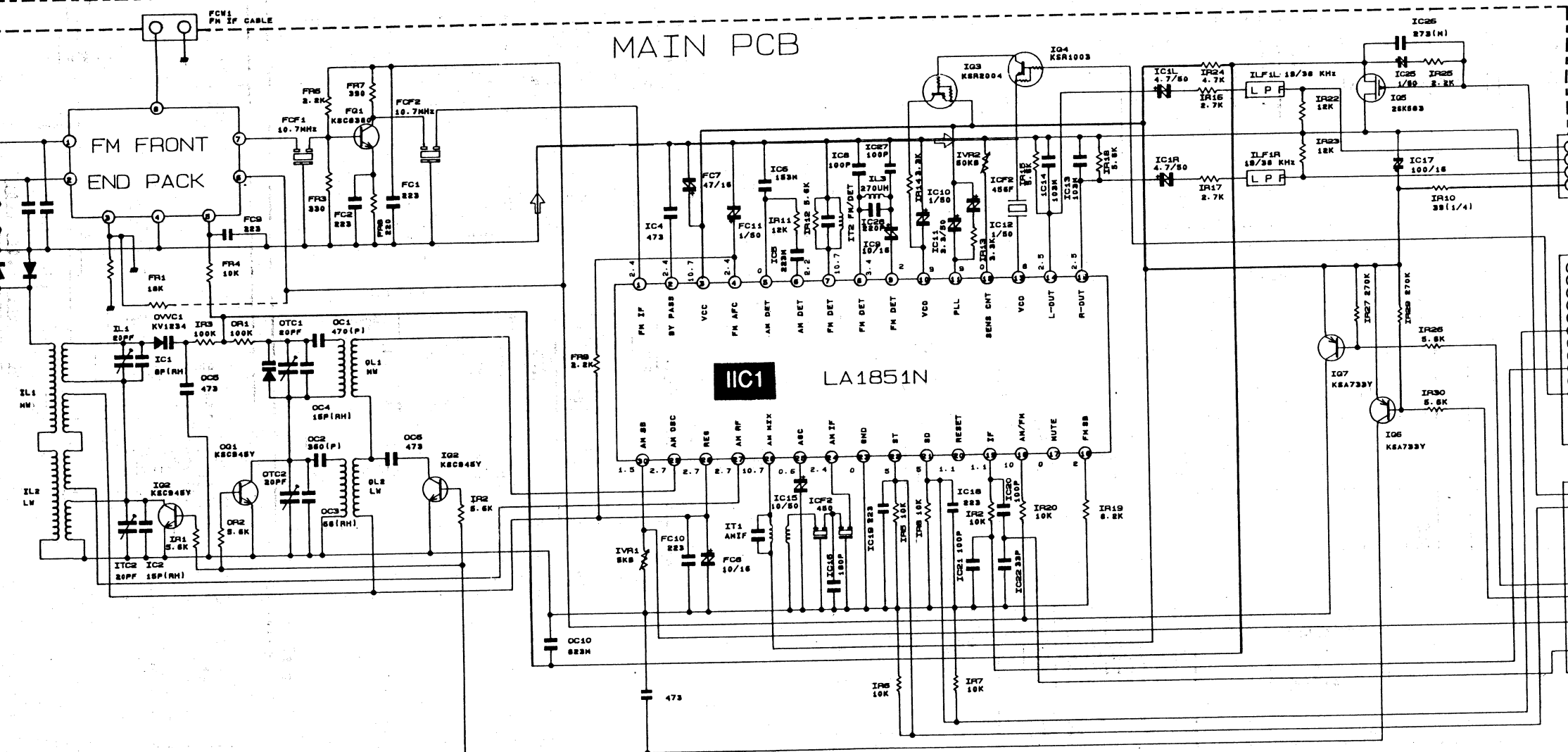
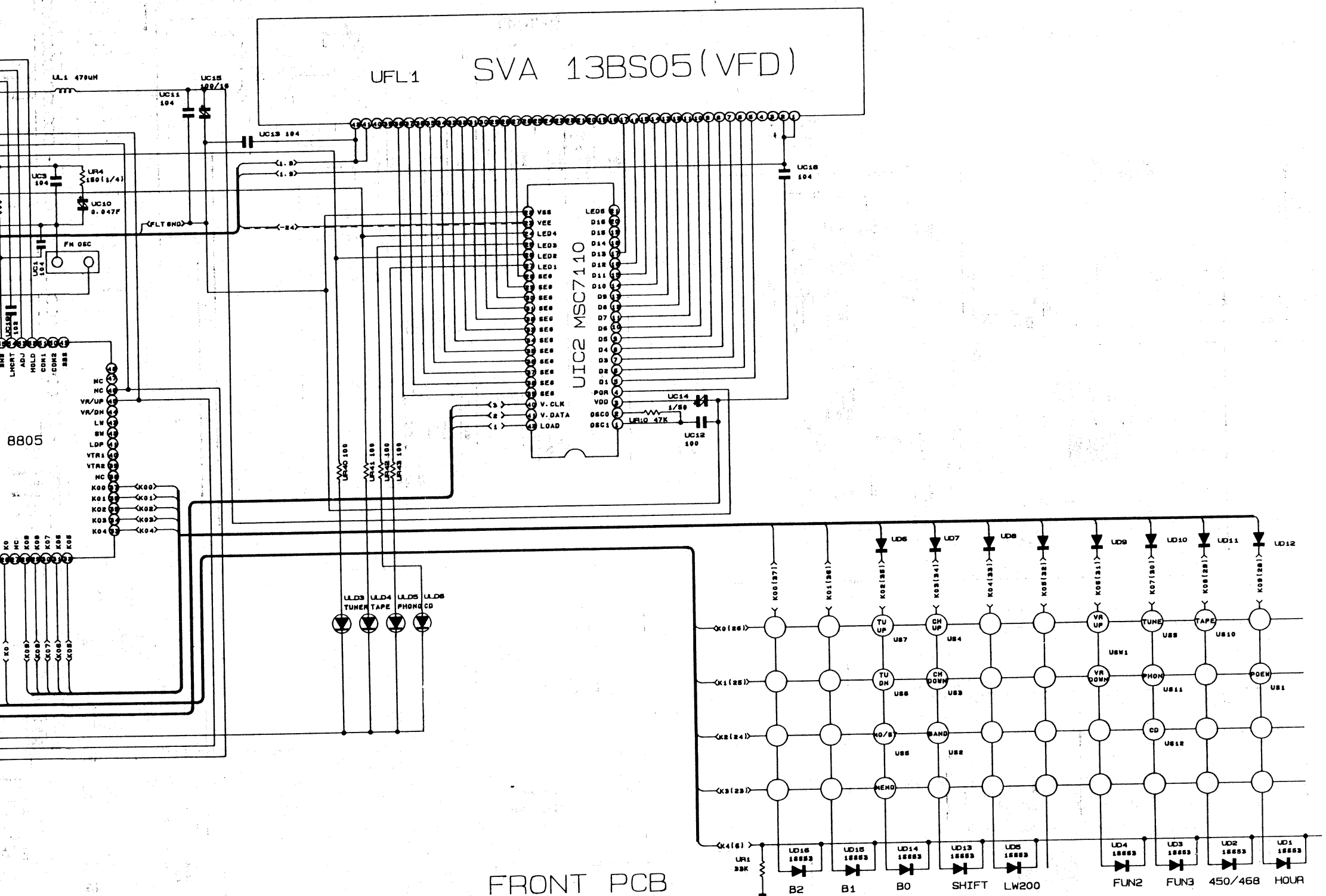


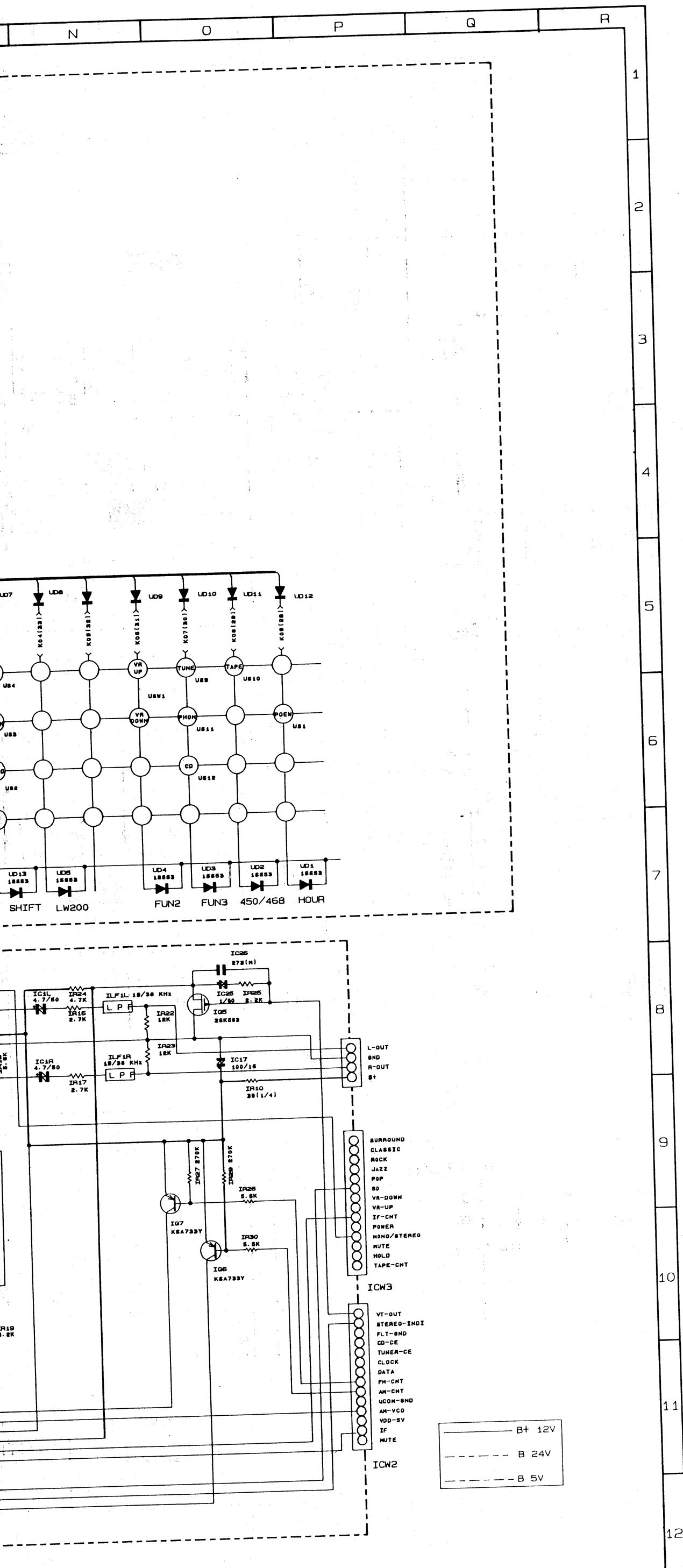
MAIN PCB

G	H	I	J	K	L	M	N	O
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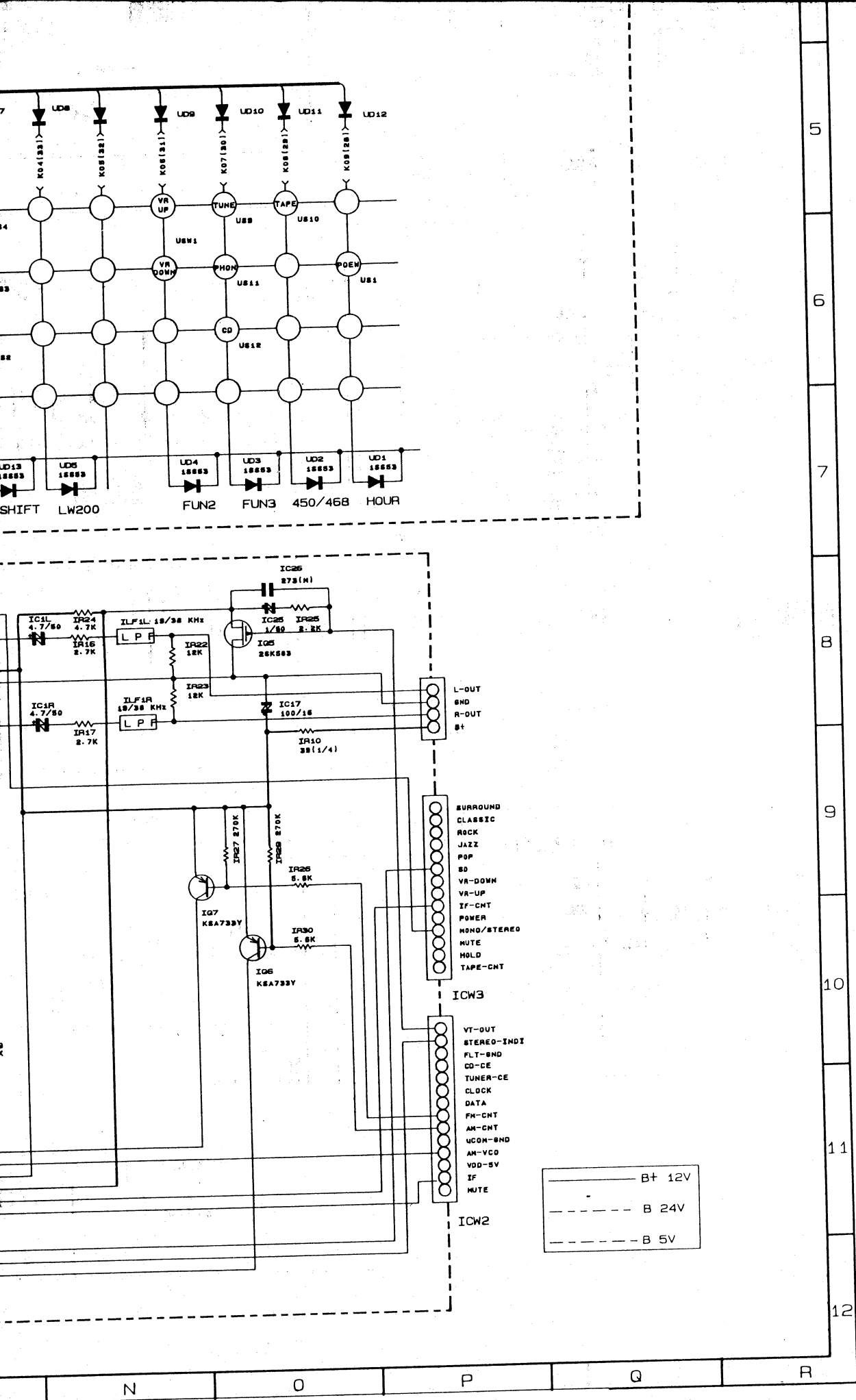
● LA1851N(FM, AM, IF IC) : IIC1



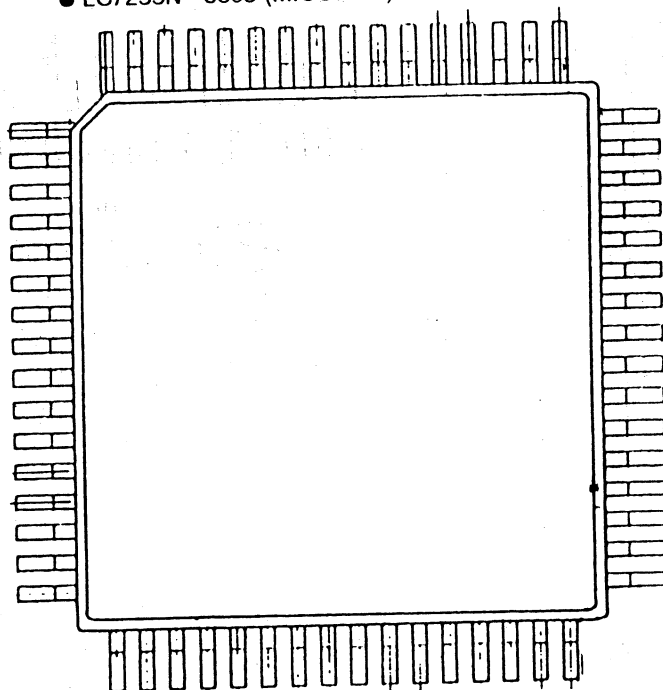




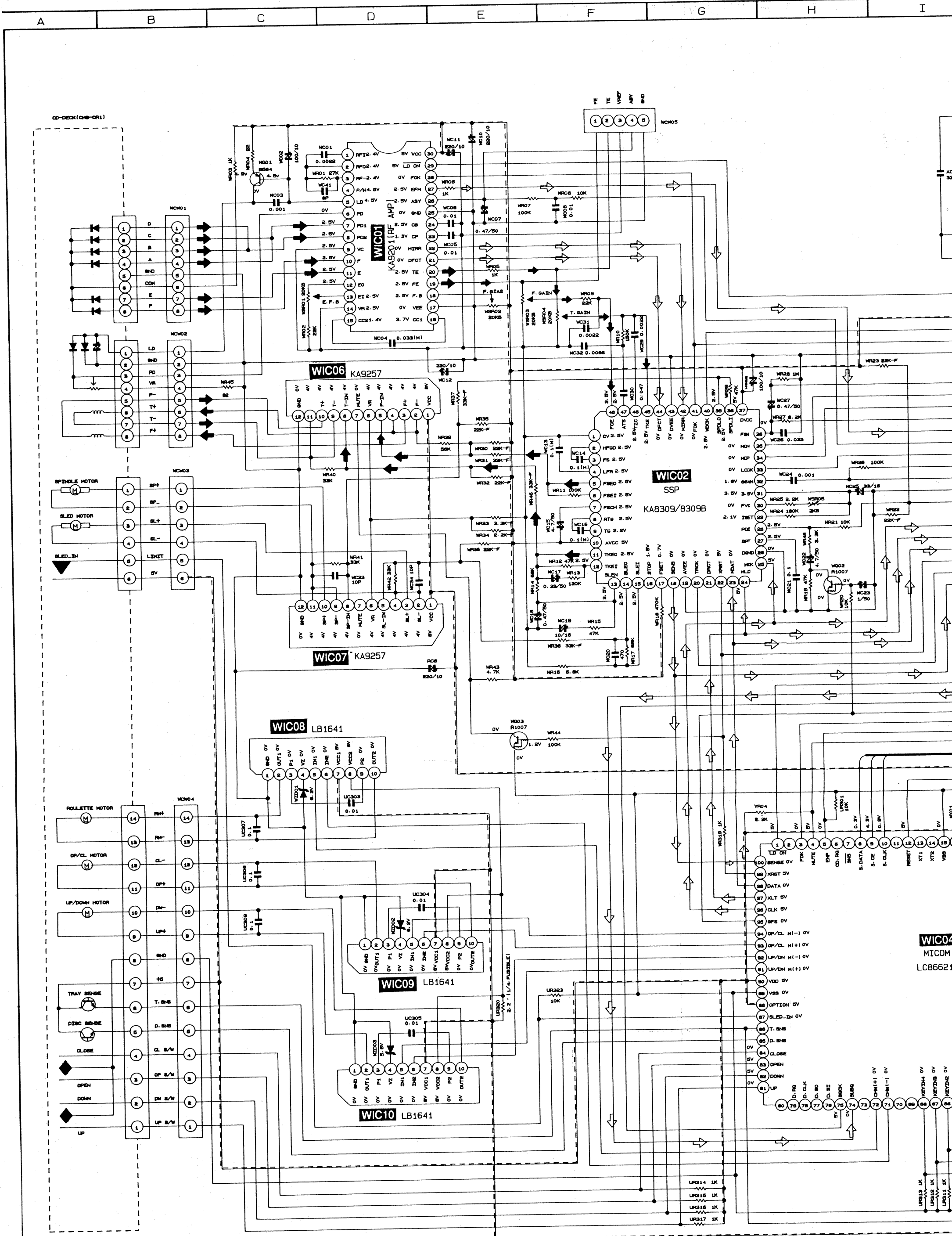
● IC LOCATION
 UIC1 (LC7233N-8805) : G4
 UIC3 (TC9135AP) : C10
 UIC2 (MSC7110) : K4
 IIC1 (LA1851N) : K10

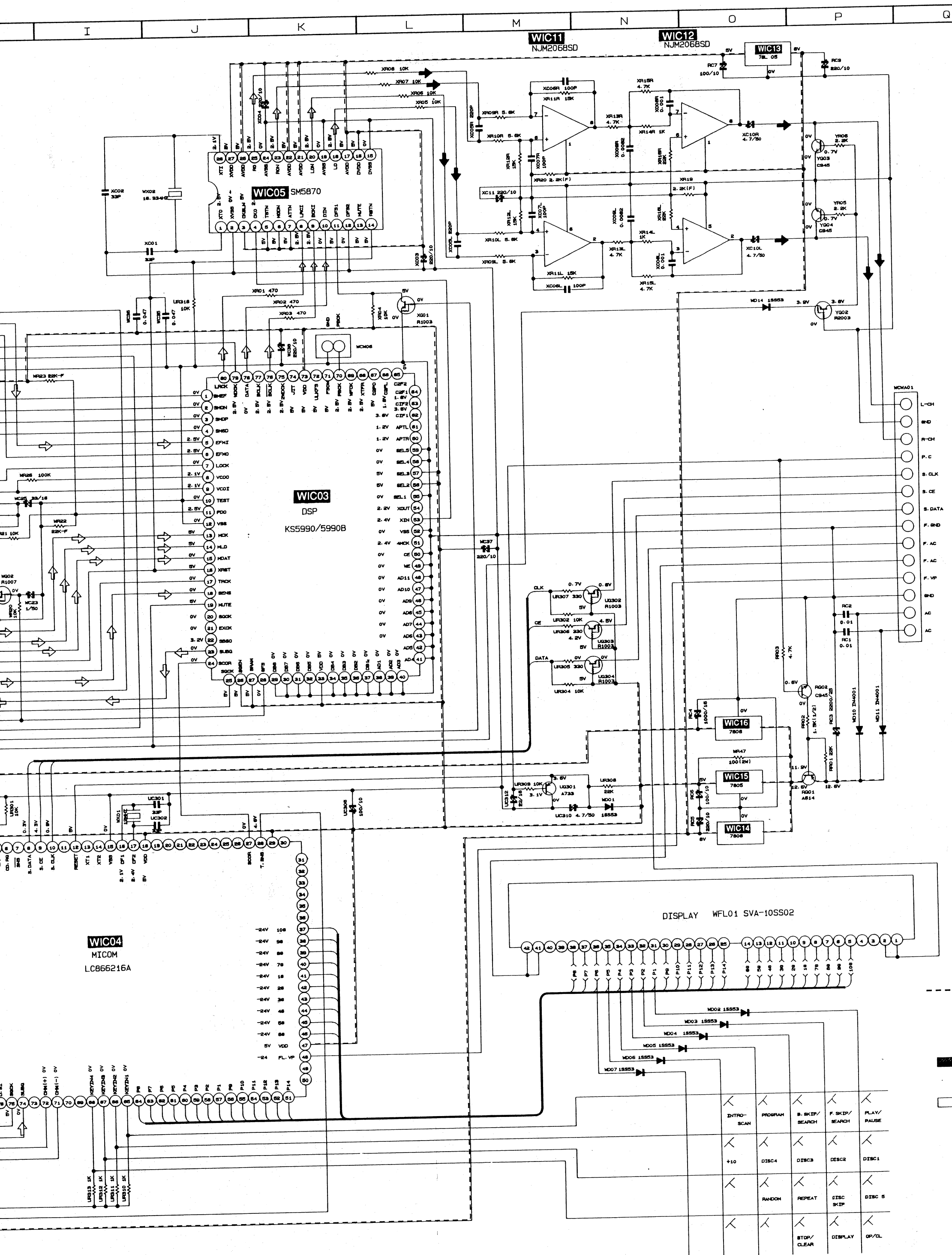


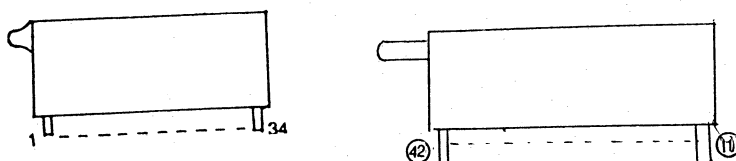
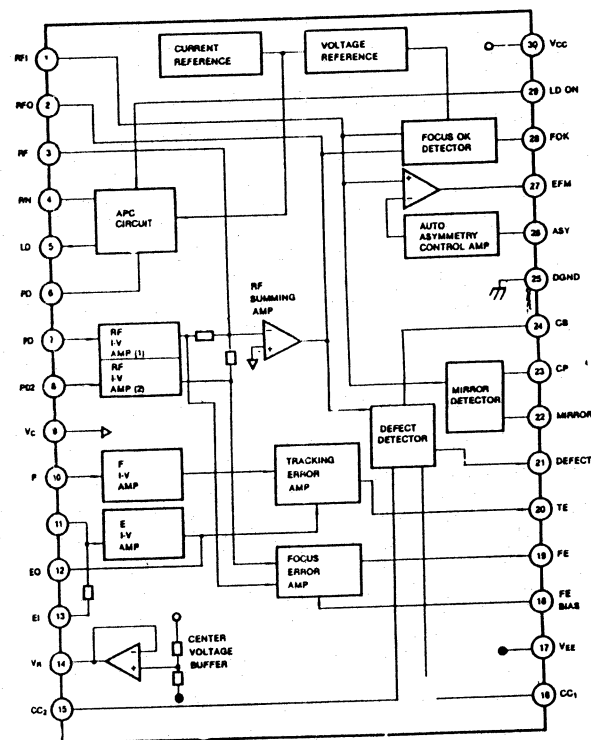
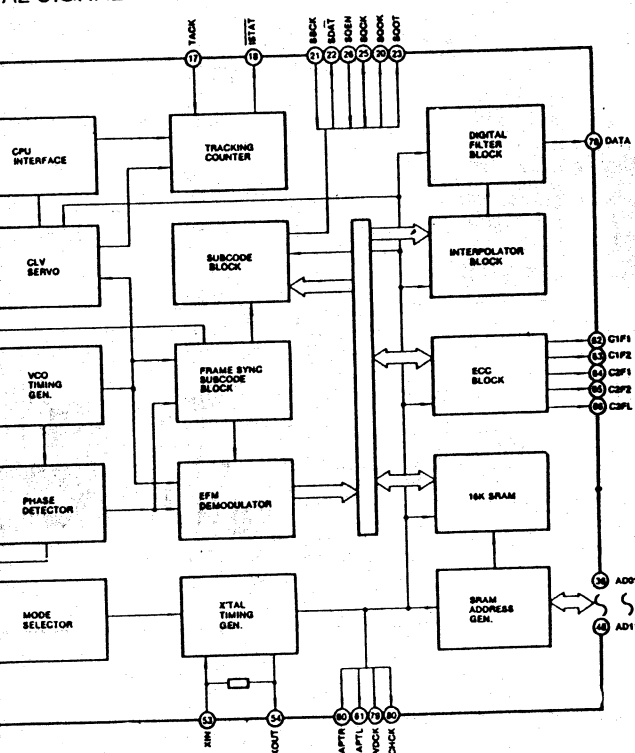
● LC7233N - 8805 (MICOM IC) : UIC1



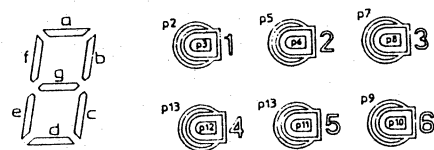
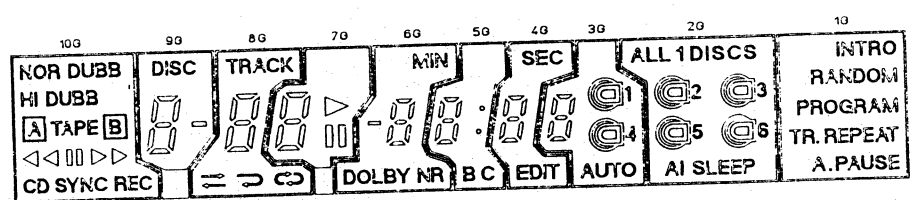
3. CD PLAYER







PIN CONNECTION																																										
PIN NO	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	NP	P8	P7	P6	P5	P4	P3	P2	P1	P9	P10	P11	P12	P13	P14	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	6G	5G	4G	3G	2G	1G	7G	8G	9G	10G	NP	NP	F1	F1

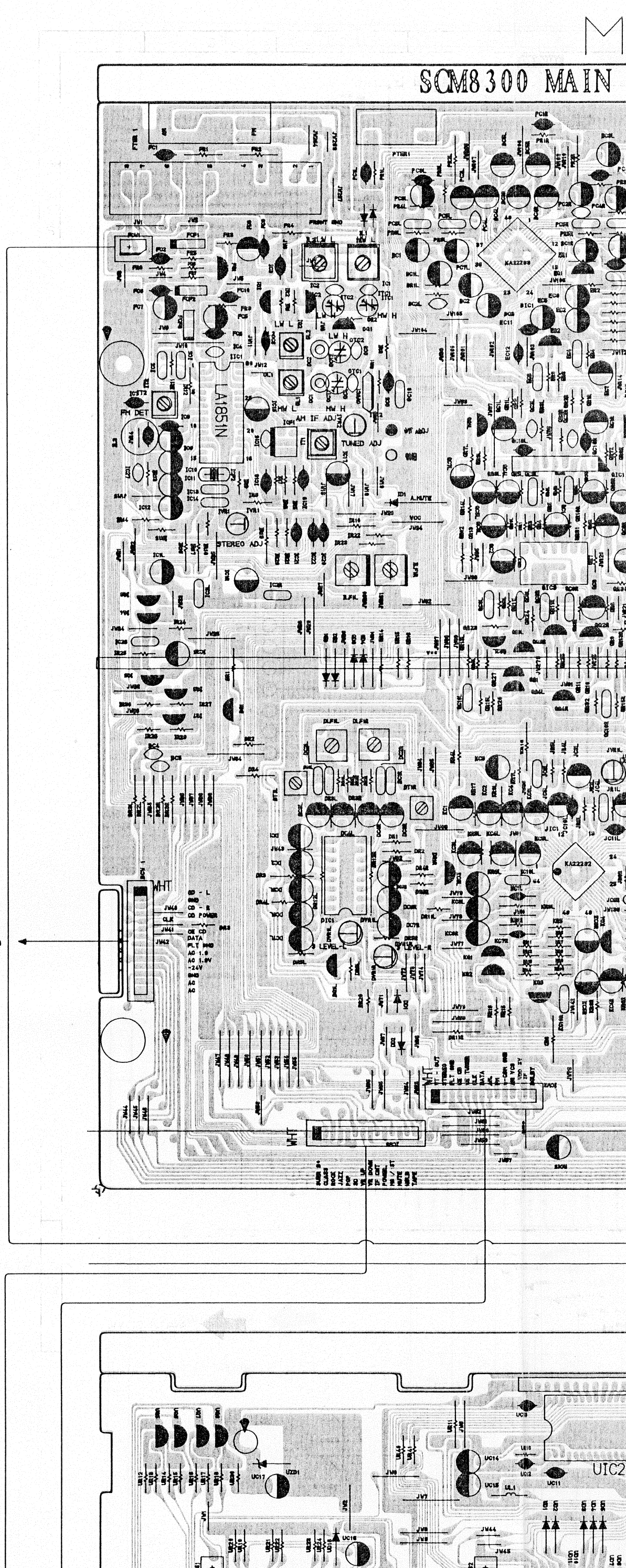


	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	NOR DUBB	DISC	TRACK	—	MIN	—	SEC	—	ALL	INTRO
P2	HI DUBB	—	—	—	—	—	—	Ⓒ ¹	1	—
P3	A TAPE B	—	—	—	—	—	—	□	DISC	—
P4	□ ⁽³⁰⁾	a	a	a	a	a	a	a	S	RANDOM
P5	□ ⁽⁹⁾	b	b	b	b	b	b	b	Ⓒ ²	—
P6	◁ ⁽³⁰⁾	f	f	f	f	f	f	f	□	—
P7	◁ ⁽⁹⁾	g	g	g	g	g	g	g	Ⓒ ³	—
P8	—	▬	—	▷	▬	:	—	—	□	PROGRAM
P9	⏏	c	c	c	c	c	c	c	Ⓒ ⁸	—
P10	▷ ⁽³⁰⁾	e	e	e	e	e	e	e	□	REPEAT
P11	▷ ⁽⁹⁾	d	d	d	d	d	d	d	□	—
P12	—	—	⏏	⏏	—	—	—	□	—	—
P13	REC	—	U	—	—	C	—	Ⓒ ⁴	Ⓒ ⁵	TR.
P14	CD SYNC	—	⏏	—	DOLBY NR	B	EDIT	AUTO	AI SLEEP	A. PAUSE

■ WIRING DIAGRAM

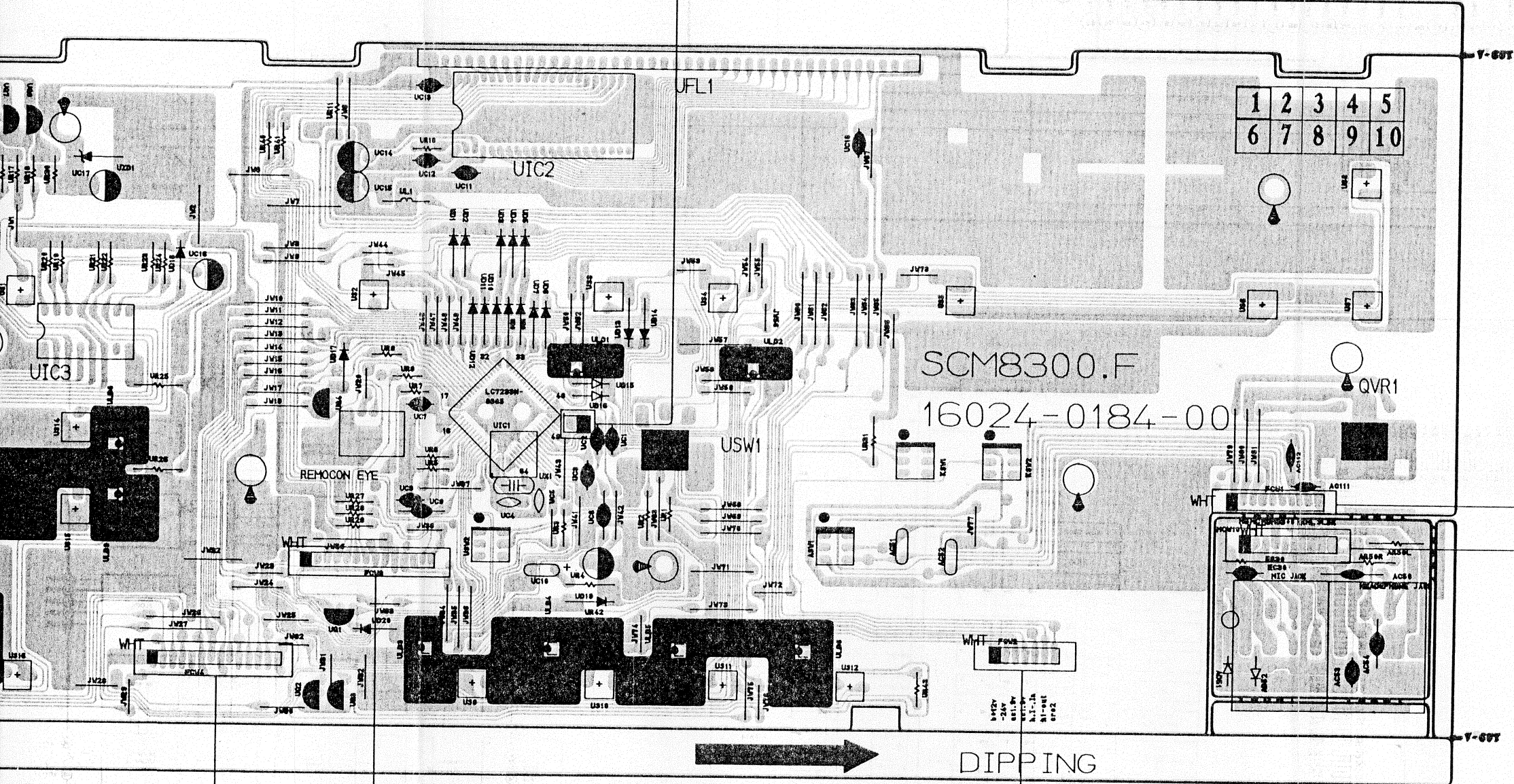
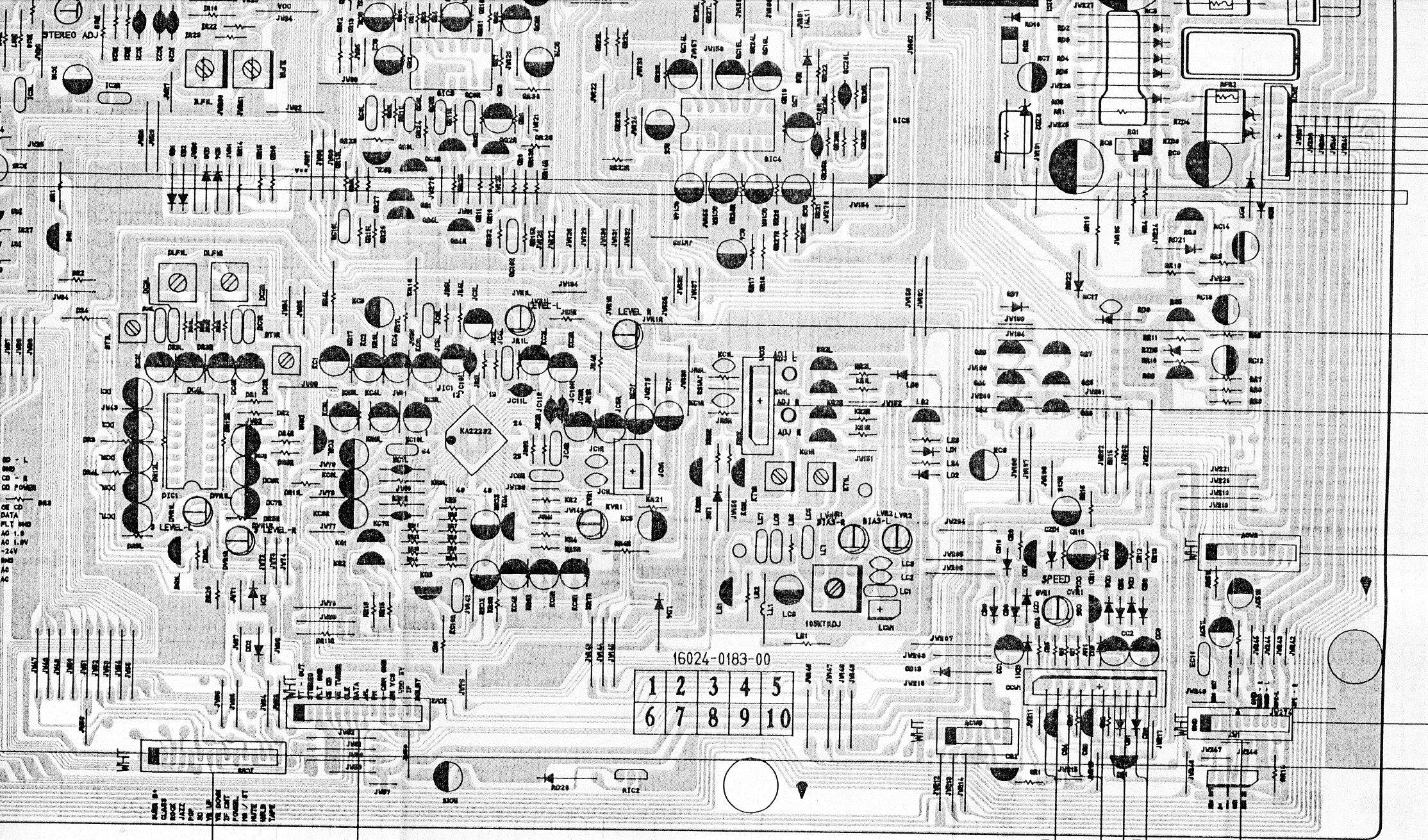
1. MAIN SECTION

1. MAIN SECTION



FROM CD

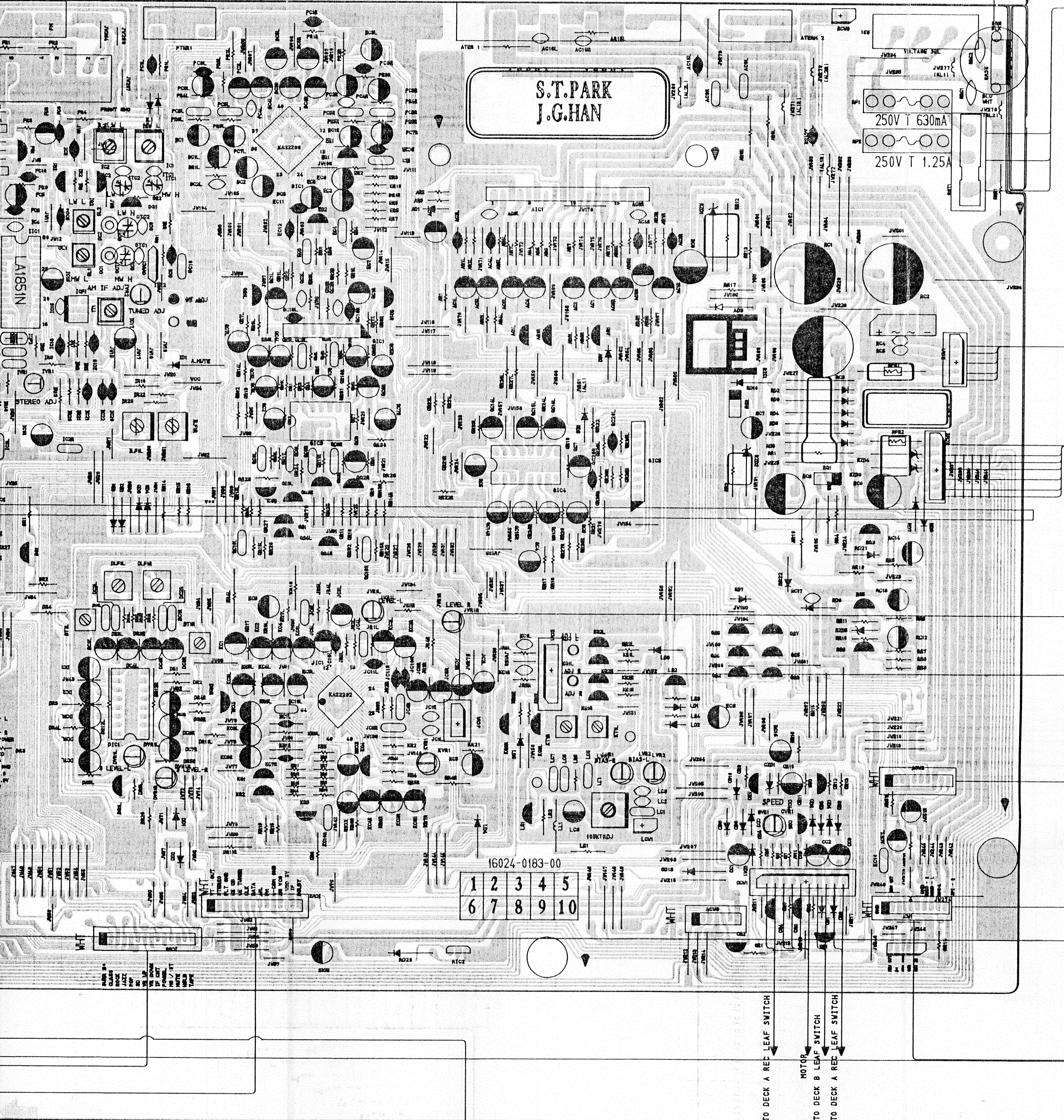
FROM



FRONT PCB

MAIN PCB

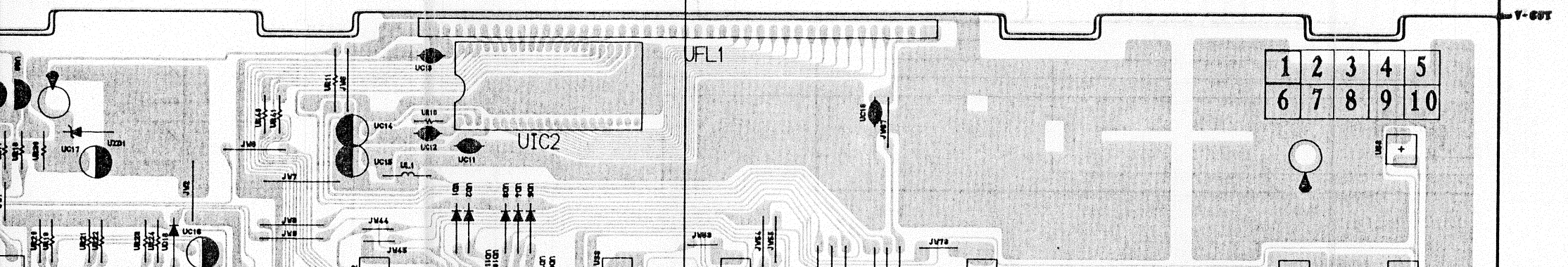
SCM8300 MAIN



16024-0183-00

1	2	3	4	5
6	7	8	9	10

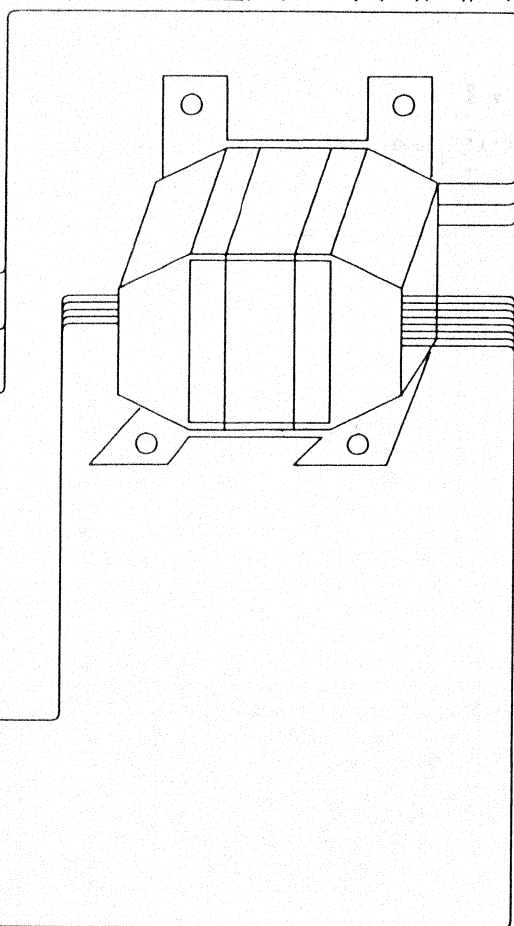
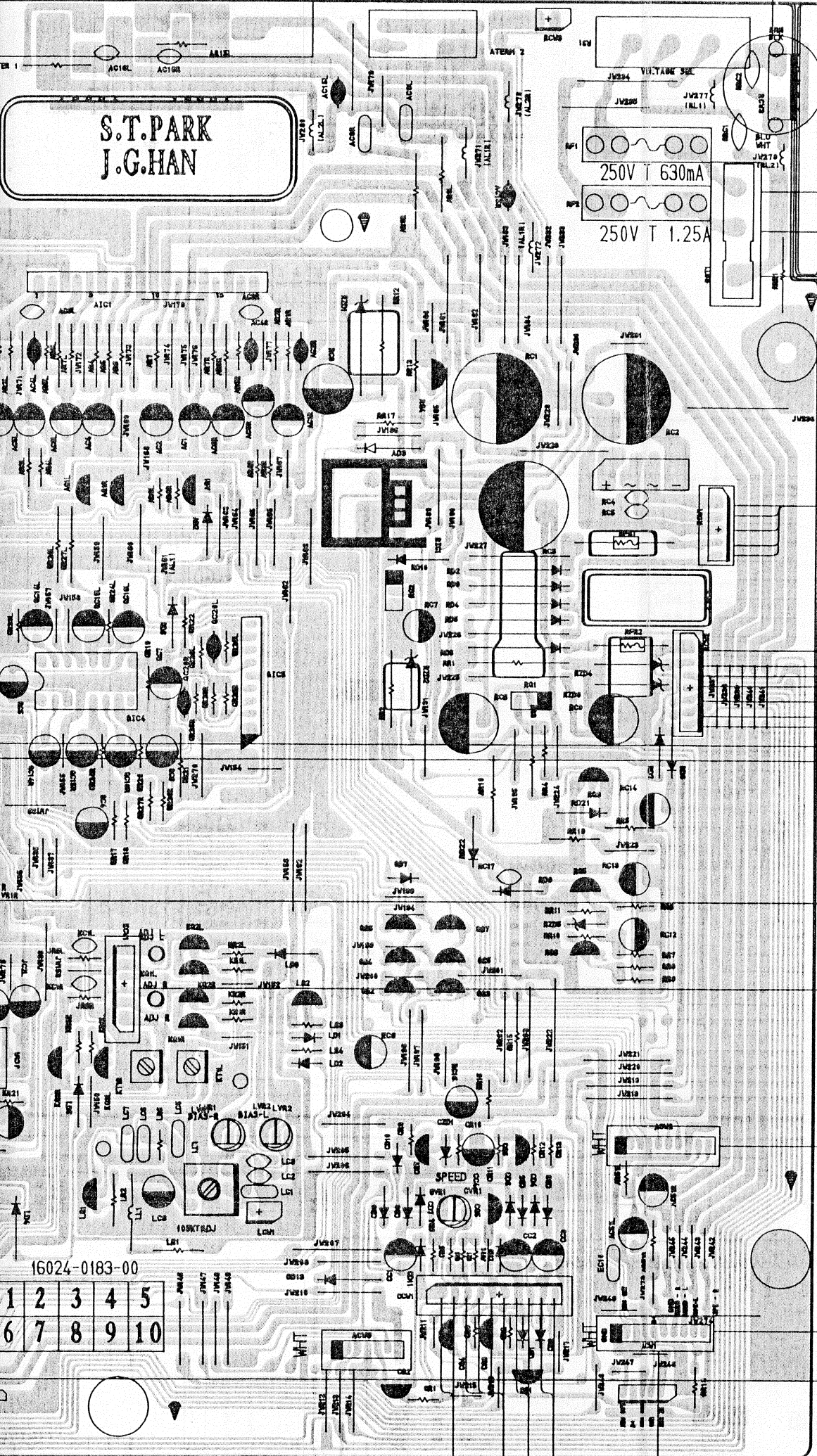
TO DECK A REC LEAF SWITCH
MOTOR
TO DECK B LEAF SWITCH
TO DECK A REC LEAF SWITCH



N PCB

POWER CORD

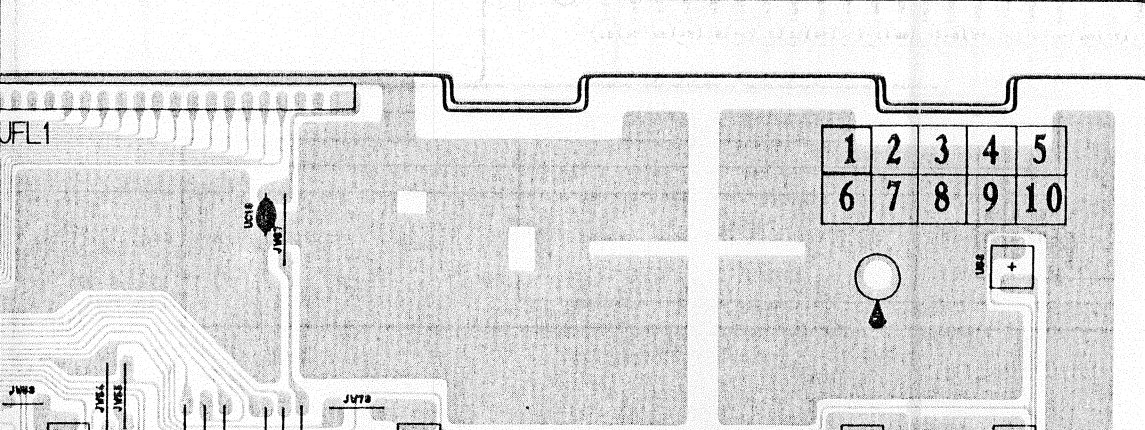
POWER TRANS

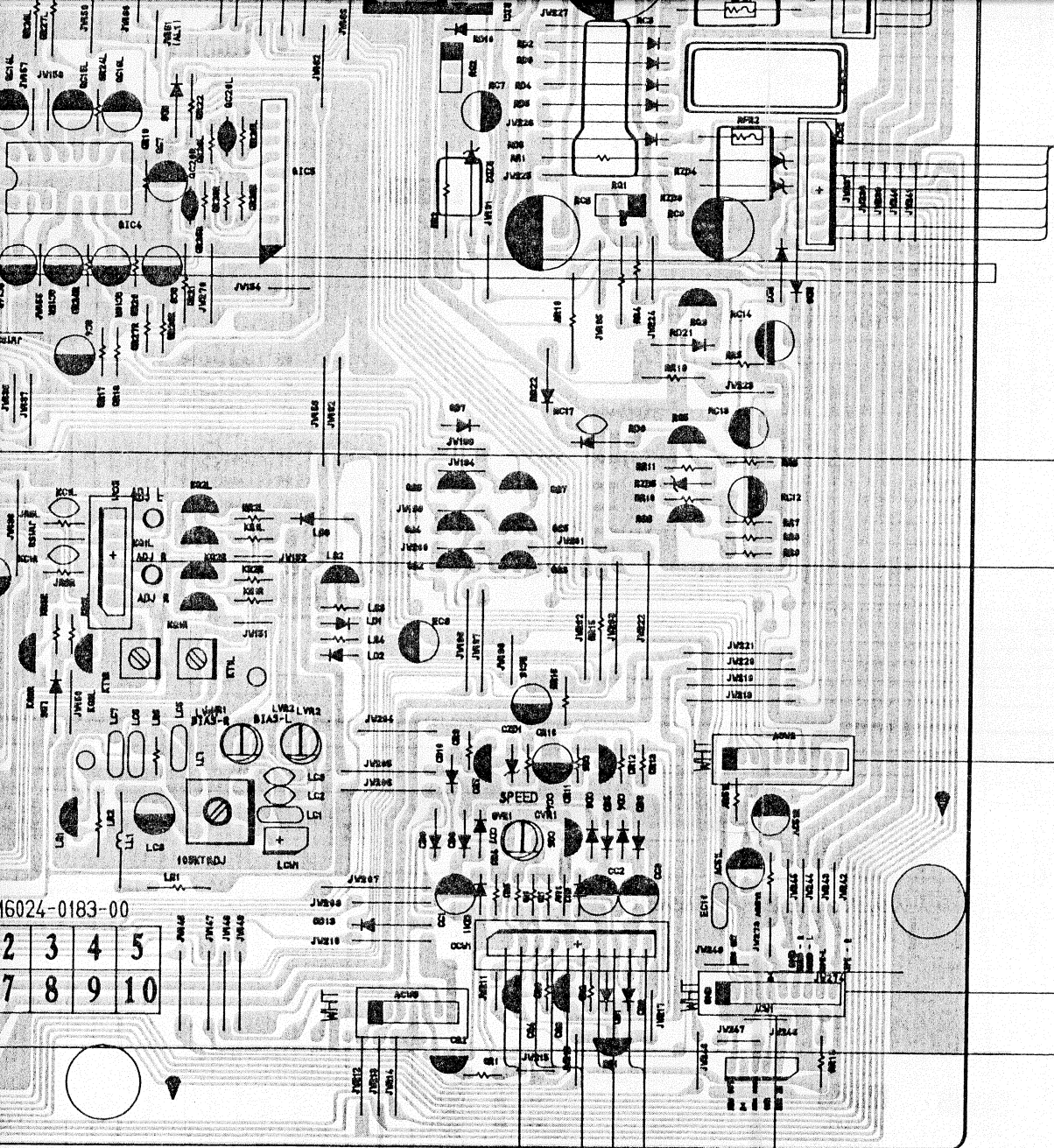


TO DECK A HEAD

TO DECK B HEAD

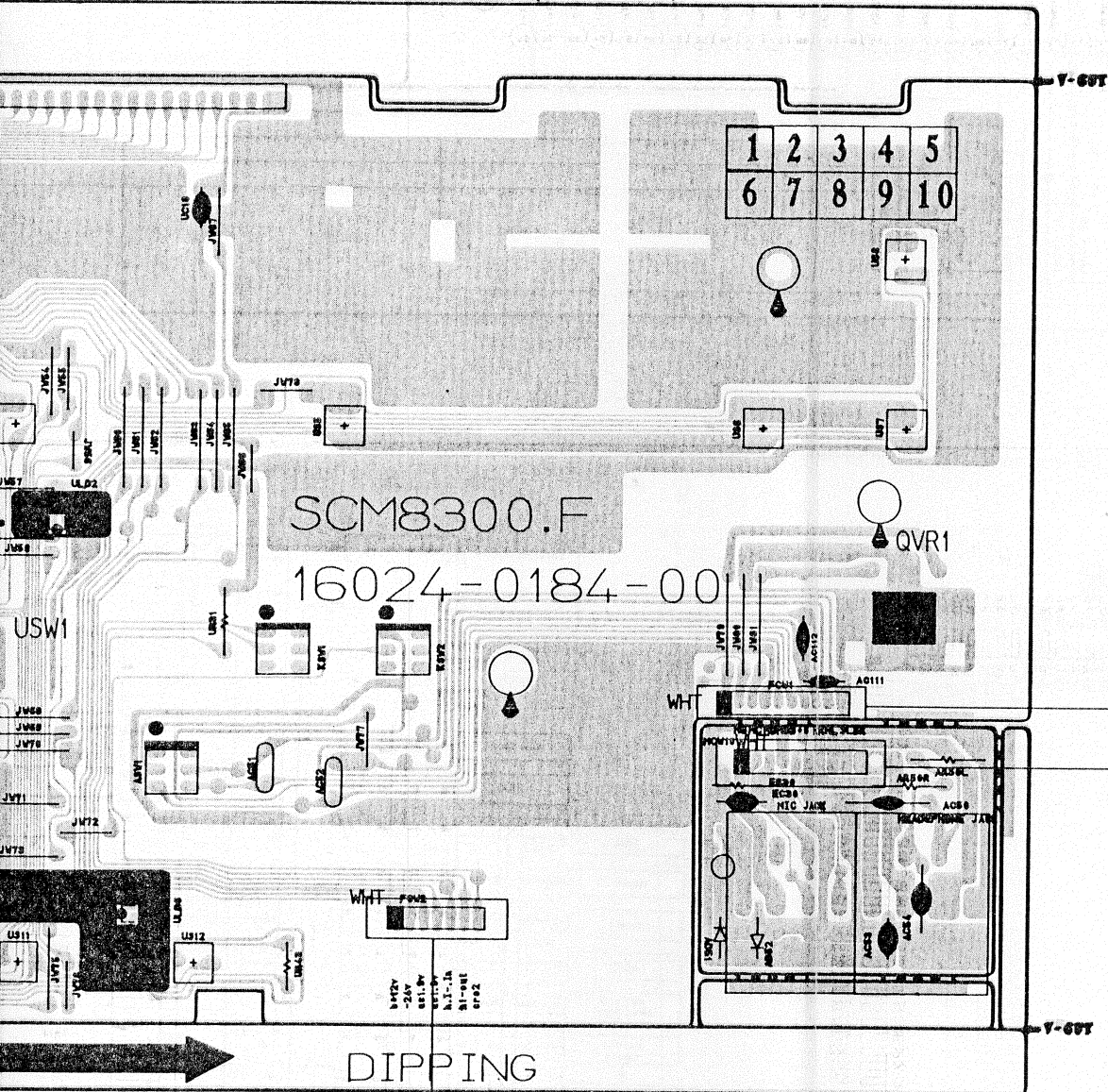
TO DECK A REC LEAF SWITCH
MOTOR
TO DECK B LEAF SWITCH
TO DECK A REC LEAF SWITCH



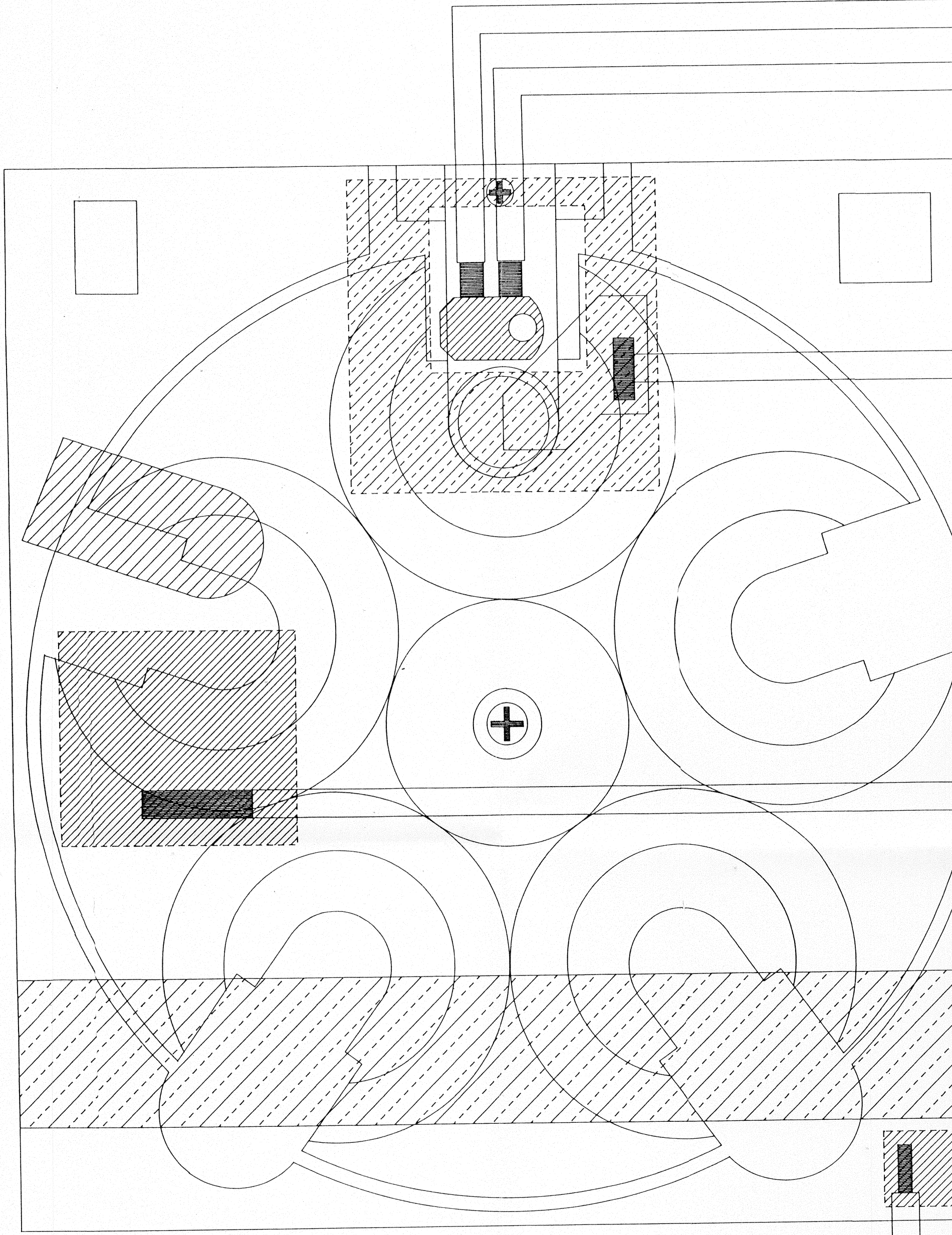


TO DECK A HEAD

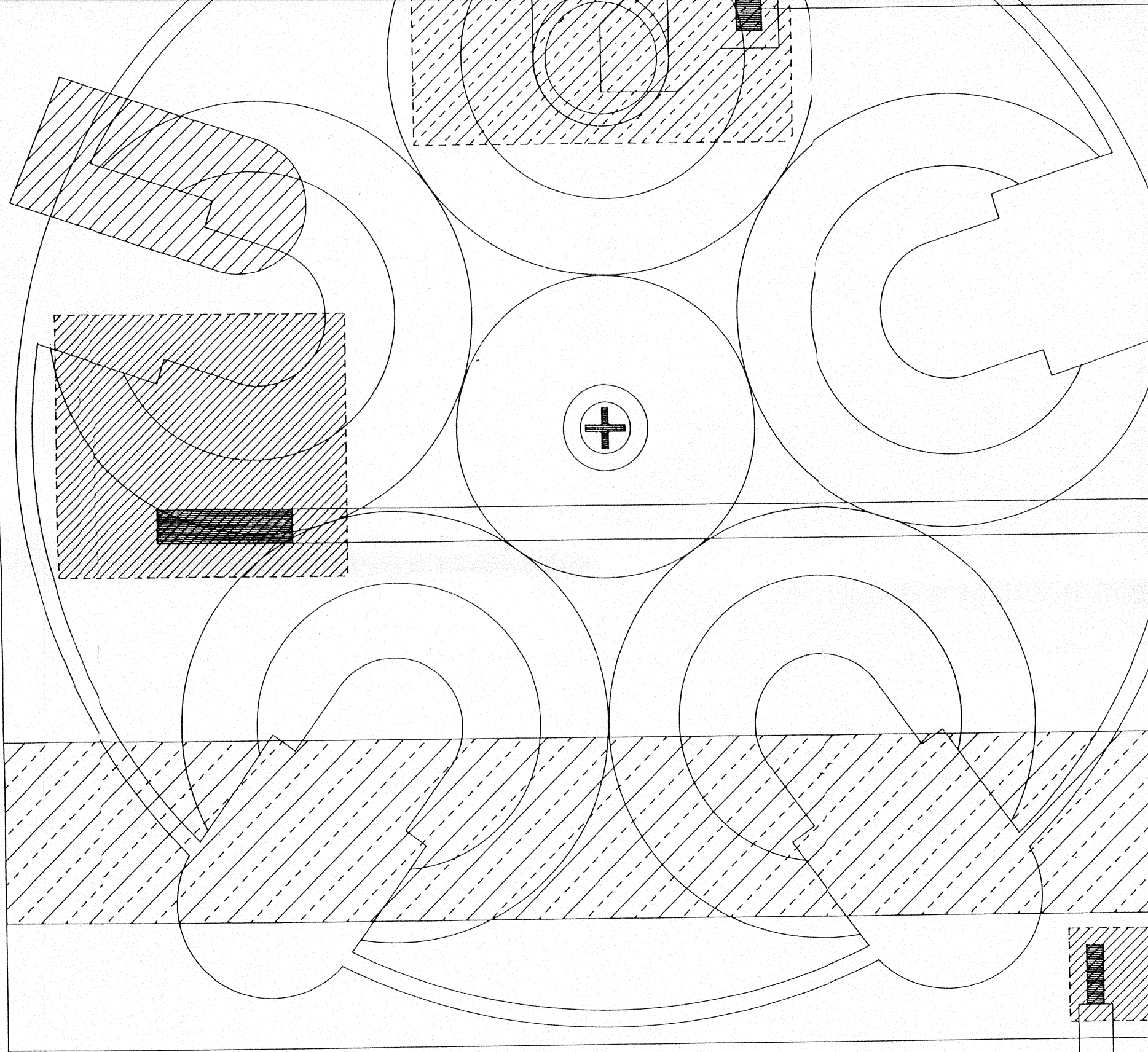
TO DECK B HEAD



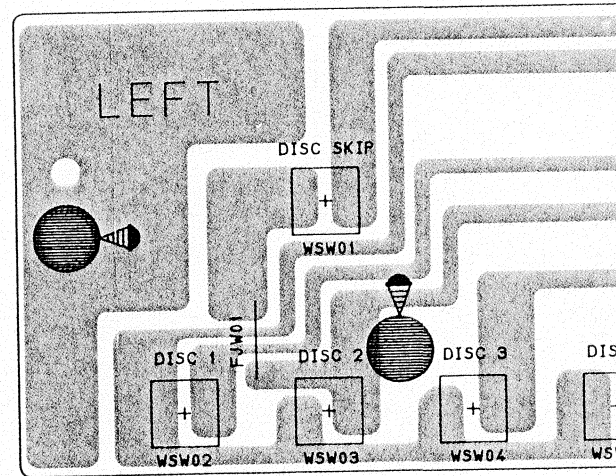
MONO



(CD - CHANGER DECK)

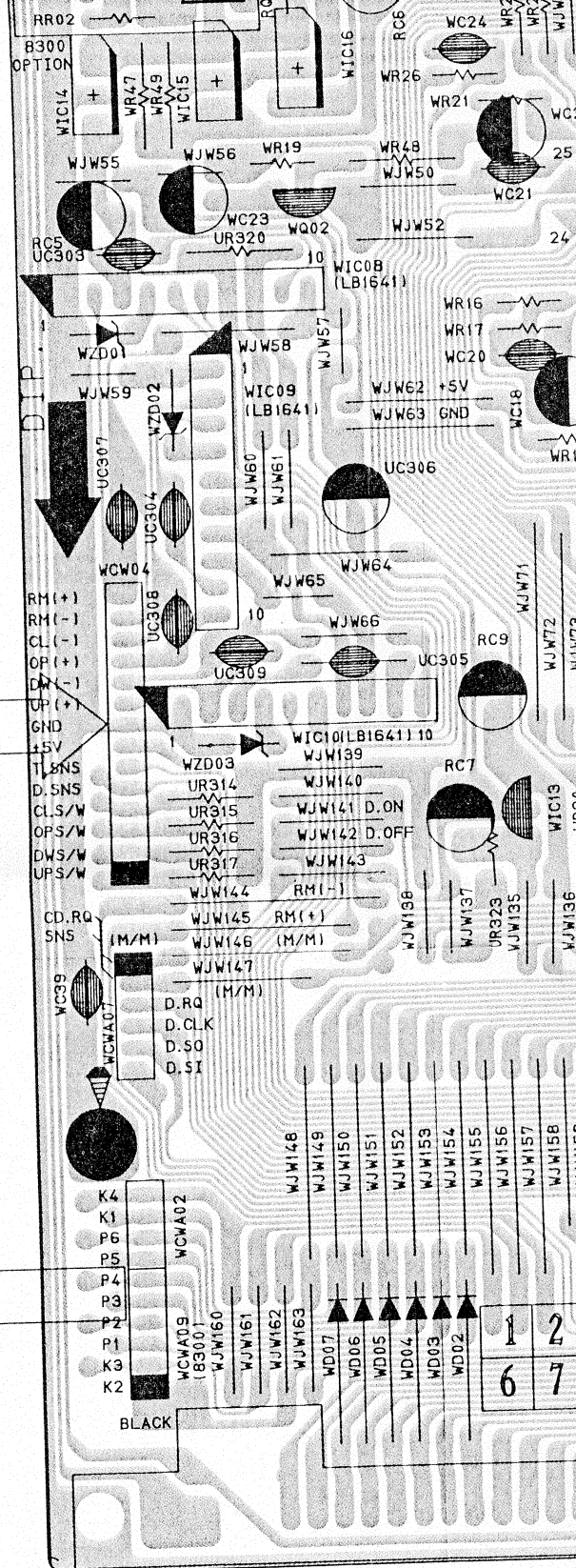


(CD - CHANGER DECK)



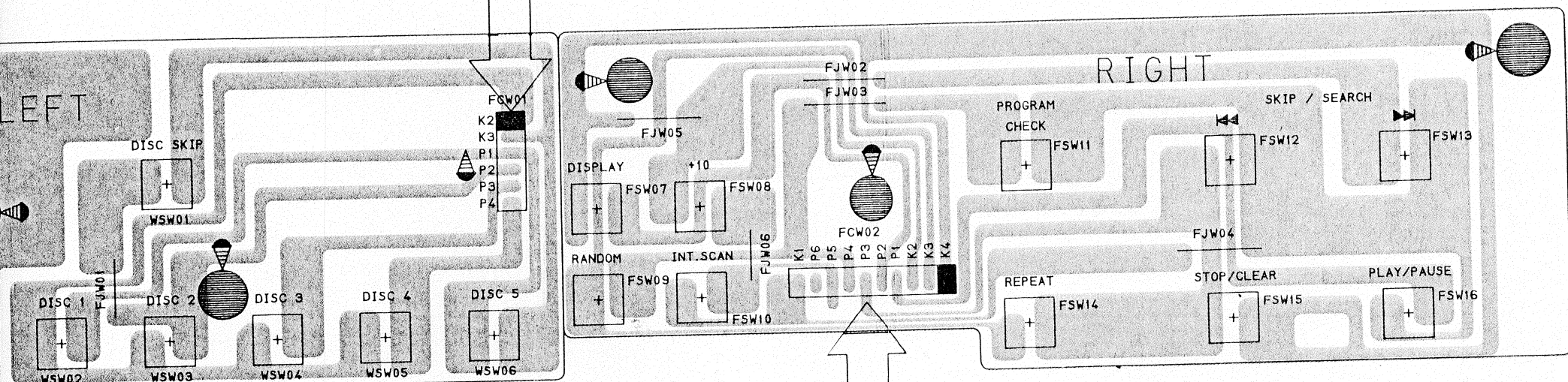
(CD FRONT)

TO MAIN
PCB

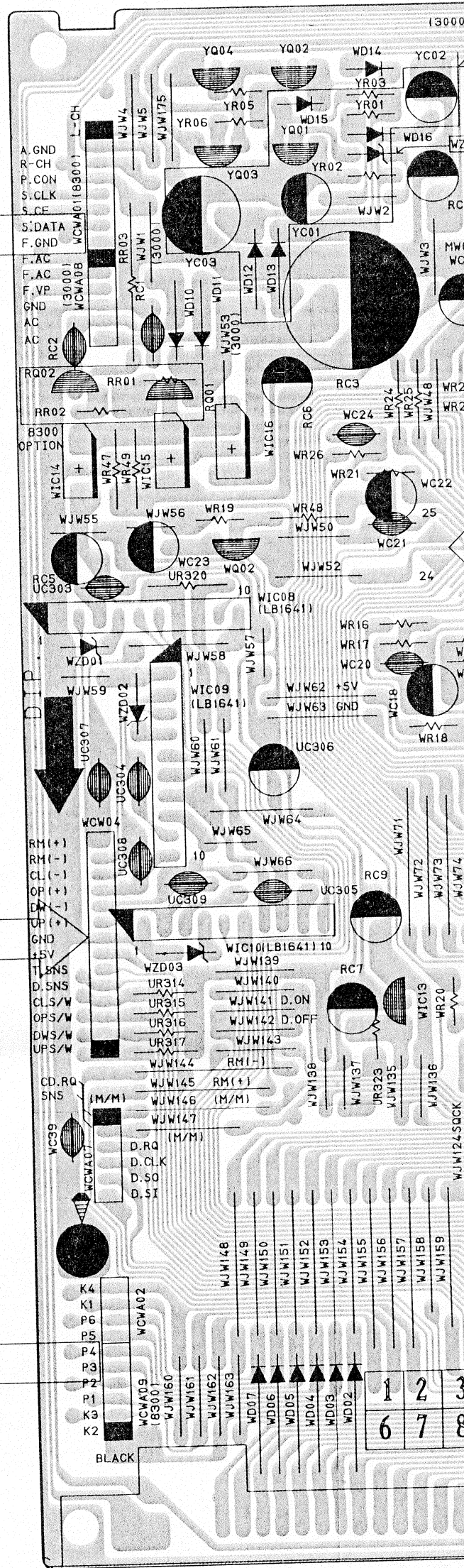


CKI

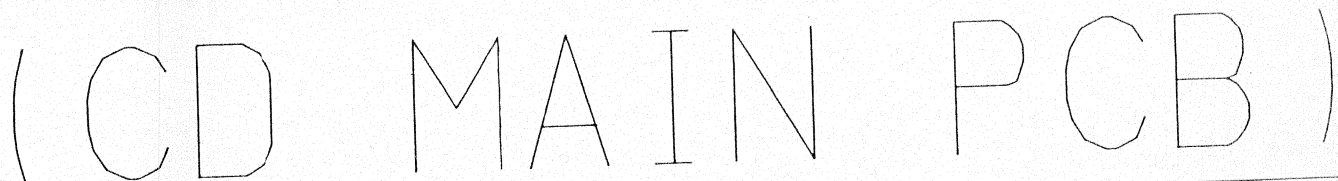
(CD)



FRONT PCB)



(CDN)



■ ABBREVIATION LIST

AC	: Alternating Current)	L	: Left, Low
Addr	: Address	LCD	: Liquid Crystal Display
ADJ.	: Adjustment)	LED	: Light Emitting Diode
AGC	: Automatic Gain Control	LPF	: Low Pass Filter
ALC	: Automatic Level Control	LW	: Long Wave
AM	: Amplitude Modulation	Max	: Maximum
AMP	: Amplifier	MHz	: Meghertz
AMPS	: Automatic Music program Search	Min	: Minimum
ANT	: Antenna	MOD	: Modulation
ASSY	: Assembly	MPX	: Multiplex
		MW	: Medium Wave)
BAL	: Balance	NF	: Negative Feedback
BLK	: Black	OP AMP	: Operational Amplifier
BLU	: Blue	ORG	: Orange
BPF	: Band Pass Filter	OSC	: Oscillator
BRKT	: Bracket	PB	: Playback
CD	: ComPack Disc	PCB	: Printed Circuit Board
CF	: Ceramic Filter	PLL	: Phase Lock Loop
ch	: channel	P/T	: Power Transformer
cm	: centimeter	R	: Right
COM	: Common	RAM	: Random Access Memory
CON MIC	: Condenser Microphone	REC	: Record
D	: Depth	REG	: Regulator
D/A Convertor	: Digital/Analog Convertor	REW	: Rewind
dB	: deciBel	RF	: Radio Frequency
DC	: Direct Current	ROM	: Read Only Memory
DEC	: Decoder	R/P	: Record/Play
DET	: Detector	sec	: Second
DEV	: Deviation	SSG	: Standard Signal Generator
DSP	: Digital Signal Processor	SSP	: Servo Signal Processor
DTS	: Digital Tuning System	ST	: Stereo
EA	: Each	ST/EJT	: Stop/Eject
E-HEAD	: Erase Head	SW	: Switch, Short wave
EQ	: Equalizer	TP	: Test Point
FF	: Fast Forward	TR	: Transistor
F/F	: Flip Flop	TRANS	: Transformer
Fig.	: Figure	V	: Volt
FM	: Frequency Modulation	VIO	: Violet
FREQ.	: Fequency	VCO	: Voltage Controlled Oscillator
GND	: Ground	VOL	: Volume
GRN	: Green)	Vpp	: Voltage peak to peak
GRY	: Gray	VR	: Volume
H	: Height, High	Vref	: Reference Voltage
Hz	: Hertz	V/SEL	: Voltage Selector
IC	: Integrated Circuit	VTVM	: Vaccum Tube Volt Meter
IF	: Intermediate Frequency	VVC	: Voltage Variable Capacitance
IFT	: Intermediate Frequency Transformer	W	: Watt, Weight
I/O	: Input/Output	WHT	: White
KHz	: Killohertz	X	: Crystal
Kg	: Killogram	YEL	: Yellow